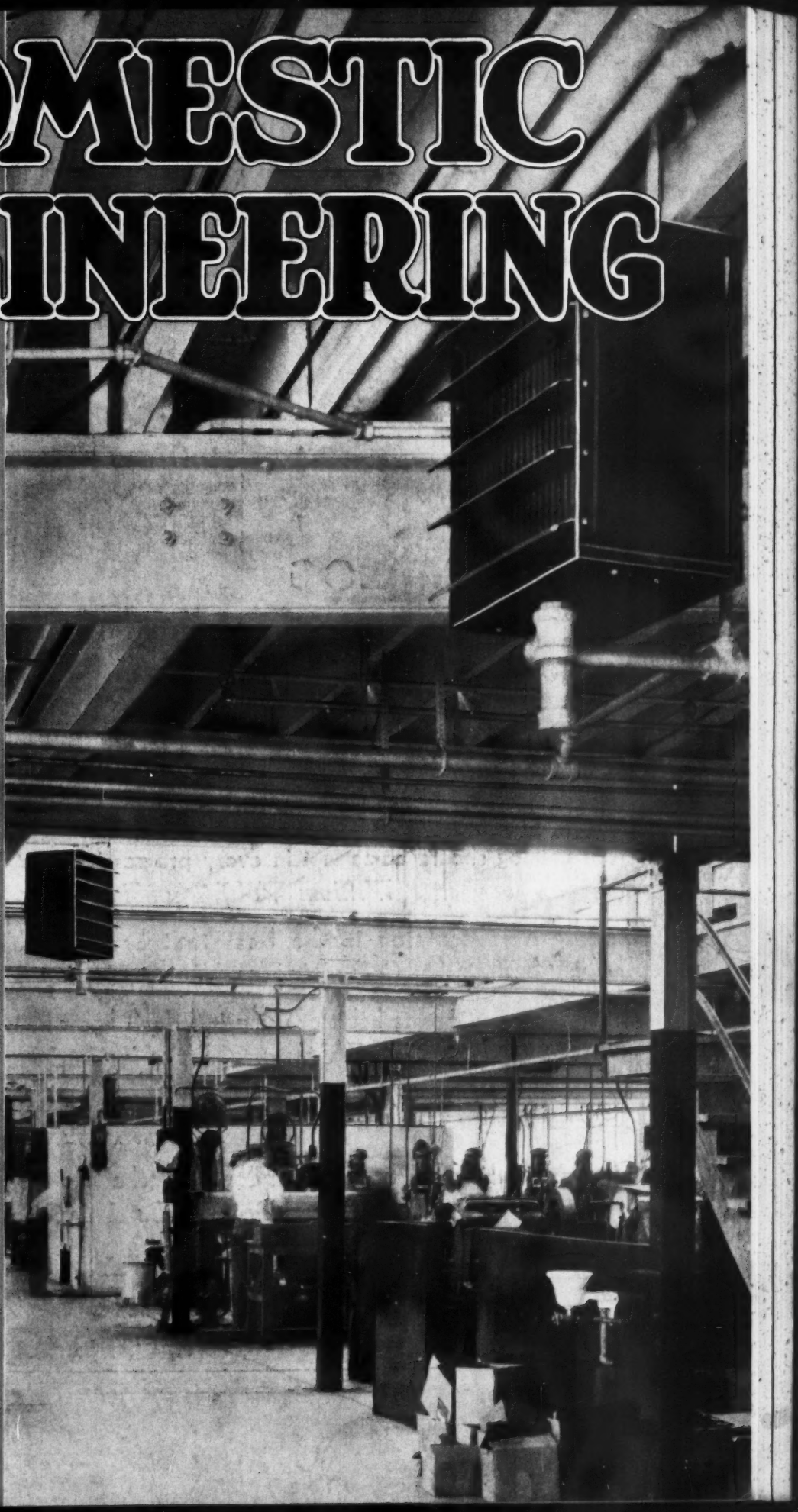
OHIO STATE
UNIVE
FEB 23
LIBRA

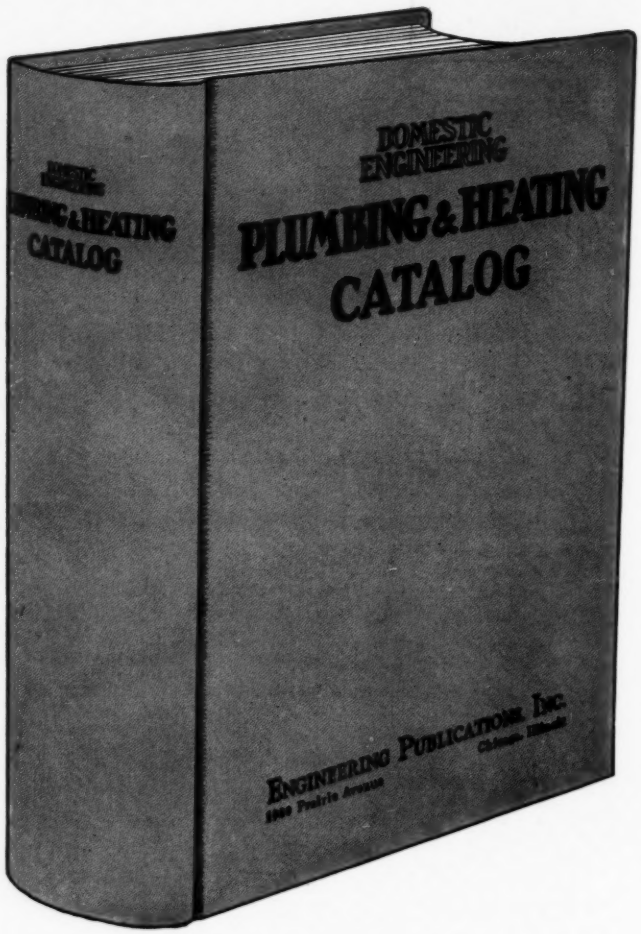
DOMESTIC ENGINEERING

umbing and Heating
Contracting and
Merchandising



it Heater Problems
d Their Solutions

FEBRUARY 20, 1932



"YOUR CATALOG SHOULD COME FIRST" » » » »

"Your catalog should come first in every progressive master plumber's office."
William Wolff, Plumbing Contractor, Brooklyn, N. Y.

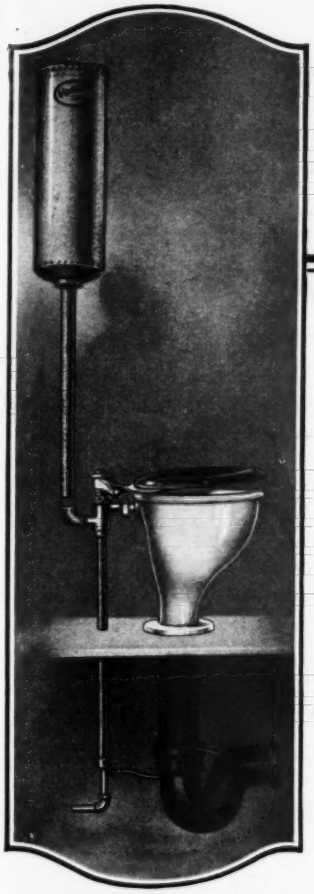
"Your general catalog is the best that has ever been put out for the plumbing business." *Colburn's Plumbing & Heating Service, Beaumont, Tex.*

"Since I am getting the habit of using it, I don't know how I got along without it."
W. F. Schwartz, Plumbing and Heating, Baltimore, Md.

"We consider it complete in every detail."
Eatman Plumbing Co., Albany, Georgia

"We feel nothing has been left undone to make this the best catalog possible."
Burns, Lane, Richardson Co., New Brunswick, N. J.

DOMESTIC ENGINEERING
PLUMBING & HEATING CATALOG
1900 Prairie Ave., Chicago, Ill.



NUMBER ONE VOGEL FROST-PROOF CLOSET

Simple in operation. Sturdy in construction. Half a million in operation.

THE NAME VOGEL IS A GUARANTEE YOU CAN PASS ALONG TO YOUR CUSTOMER

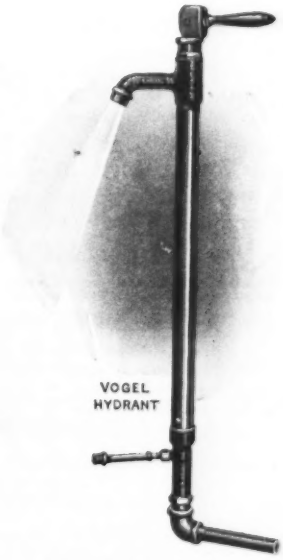
THE name Vogel on a frost-proof closet or hydrant means—the finest quality throughout—economy and satisfaction for your customer—and a good profit for every plumber who installs them.

This has been true for the twenty-five years we have been manufacturing frost-proof closets and hydrants, of which more than 500,000 have been installed. And is just as true today.

Literature imprinted with your name and address, illustrating and describing Vogel products, will be sent promptly upon request.

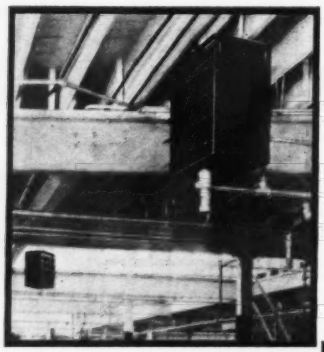
JOSEPH A. VOGEL COMPANY

Wilmington, Del. **St. Louis, Mo.**



VOGEL FROST-PROOF HYDRANT

VOGEL PATENTED *Frost-Proof* PRODUCTS



DOMESTIC ENGINEERING

Plumbing & Heating Contracting & Merchandising

Established 1889

Vol. 138, No. 4 February 20, 1932 Whole No. 1963

F. P. KEENEY,
President and Treasurer

E. DE FOREST WINSLOW,
Vice President

O. T. CARSON,
Secretary

EDITORIAL STAFF

R. V. Sawhill, *Editorial Director*
R. Herlov, Chas. E. Price,
L. W. Britton, G. R. Stearns,
W. W. Gothard,
Associate Editors
R. M. Starbuck, Jr.,
Consulting Editor on Plumbing

ADVERTISING REPRESENTATIVES

E. G. Hutchison,
R. Payne Wettstein,
Wallace J. Osborn, H. J. Carr,
D. M. Kenney, Robert A. Jack,
A. T. Papineau

BRANCH OFFICES

NEW YORK—
Rooms 1706-1707, 110 East 42nd St.

PITTSBURGH—
Room 604, Chamber of Commerce Bldg.

TERMS OF SUBSCRIPTION

Anywhere in the World, except Canada, $2.00 per year. Canada $4.00 per year
Current copies, 20c each
Back numbers, 40c each

Entered as Second Class Matter on January 19, 1929, at the Post Office at Chicago, Illinois, under the Act of March 3, 1879.

Copyright 1932, by Engineering Publications, Inc.

Member of Audit Bureau of Circulations

Published Fortnightly by
Engineering Publications, Inc.
1900 Prairie Avenue, Chicago

IN THIS ISSUE

Page

Unit Heater Problems and Their Solutions. By M. J. Stevenson 22
Eighty Years of Success in Contracting 26
Clock Flushes Fixtures 28
Automatic Control Applied to Range Boilers. By Albert F. Craver 29
Spend for the Home in 1932 41
A Model Plumbing Installation in a Tea Room. By Harry Davidson 42
Friction in Tees. By F. E. Giesecke 46

PLUMBING AND HEATING MERCHANDISING

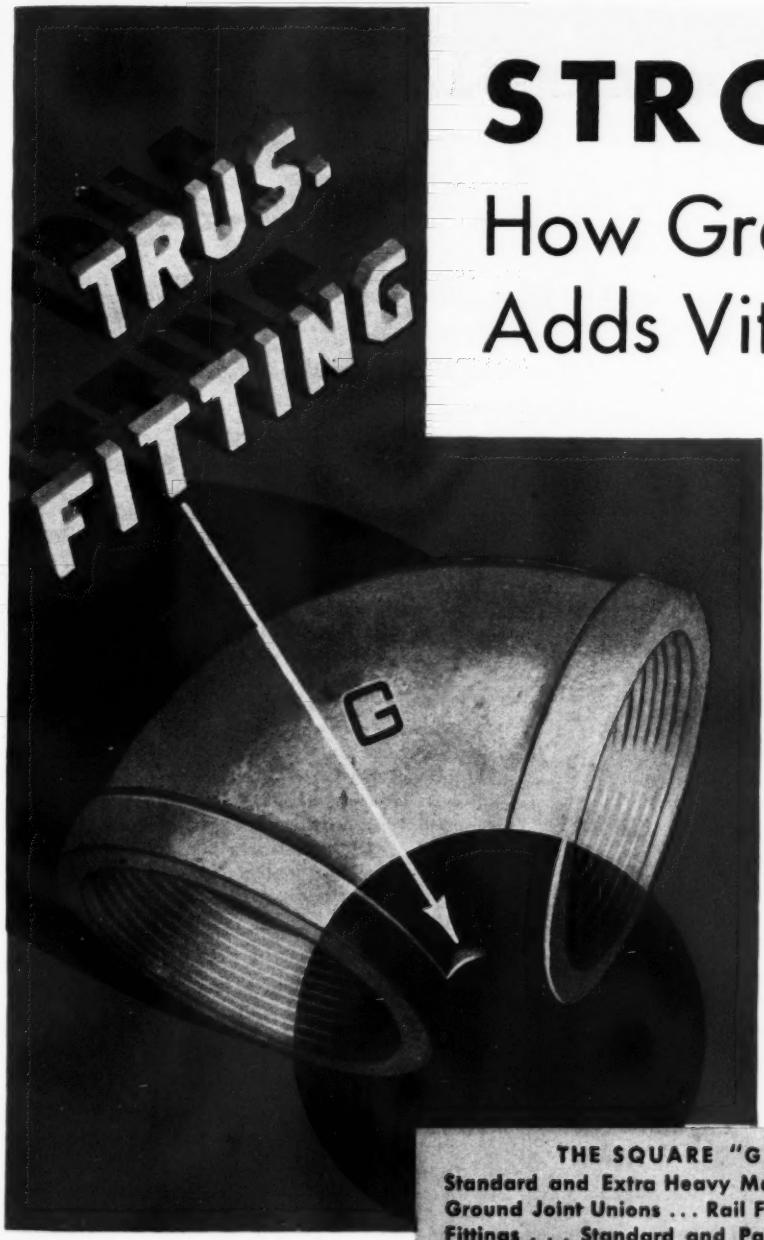
Portland Scores in Competitive Efforts 34
Meet Mail Order Merchandising on Its Own Ground 36
Sell Economy and Quality 38

AUTOMATIC HEAT

"Know Your Customers" 63
Automatic Heat Controls—How They Are Used to Effect Economies. By J. H. Meredith 67
Taking the Showroom to the Customer 70
Noise Is Corrected in Radiator Piping. By Earl Brown 74
Some Pointers in Heating with Gas. By F. S. Roche 77

SPECIAL DEPARTMENTS

Between Ourselves 6
Our Industry 21
Editorials 32
Retail Advertising Service 44
Supply News 50
Markets 58
The Trade 81
Convention Dates 98
Questions and Answers 99
Items for Store, Shop and Job 107
New Trade Literature 114
Woman's Page 118
Plumbing Patents 124
Index to Advertisers 126



STRONGER

How Grabler's Truss Adds Vital Strength!

EXTRA METAL at the point of greatest strain. That is why Square "Gee" Trus-Fittings have more strength and staying power; why you can count on them to stand up under extra loads or emergency strains. Exclusive truss-construction; advanced production methods; clean-cut, precision threads; triple inspection of every fitting. Four proved reasons why the Square "Gee" is the mark of uniform dependability . . . *always*. Why you are money and time ahead when you say "Square 'Gees'" on every fittings order.

THE GRABLER MFG. COMPANY
6565 BROADWAY · CLEVELAND, OHIO
Warehouses:
New York, Chicago, Los Angeles, San Francisco

THE SQUARE "GEE" LINE INCLUDES:
Standard and Extra Heavy Malleable Fittings . . . Standard and Ground Joint Unions . . . Rail Fittings . . . Standard Cast Iron Steam Fittings . . . Standard and Patented Cast Iron Drainage Fittings . . . Standard and Extra Heavy Brass Fittings . . . Brass Unions . . . Steel and Brass Nipples . . . Hangers . . . Floor and Ceiling Plates.

YOUR FITTING PROBLEM IS SOLVED WHEN YOU SAY SQUARE "GEES"

SQUARE Pipe — **"GEE" Fittings**

MALLEABLE, CAST IRON — DRAINAGE, BRASS

MAIN LIBRARY A.

Between Ourselves

THREE-QUARTERS of a century is a long time for any one firm to be in business, and the Barrett Hardware Co. of Joliet, Ill., can boast of an even better record than this. The firm was established eighty-one years ago, in 1851, and has had a continuous record of success in plumbing and heating contracting. They have been constant readers of DOMESTIC ENGINEERING. *The interesting history of this company appears on Page 26.*

Your Editor

"UNIT Heater Problems and Their Solution" is the title of one of the leading articles in this issue, commencing on Page 22. "When a unit heater of the disc fan type delivers a small air volume with a low outlet velocity and a high outlet temperature, without a recirculating box, difficulty with the heating installation is likely to result," says the author, M. J. Stevenson. He explains that these causes of trouble may be expected to be present in a large percentage of future installations. The article tells how several jobs that were not heating satisfactorily were corrected.

THE tea room is one of the many modern enterprises that can be included by the plumbing trade in its catalog of business possibilities. Tea rooms have multiplied fast in recent years and whenever one comes into being there is presented to the plumber a new opportunity for business. Frequently, however, they are started on a small scale, and it is not until the business develops that the opportunity for the plumber appears. That is what happened in a plumber's experience described in an article on Page 42. He watched a local tea room grow, made friends with the proprietress, and then, when the business proved to be sound, the remodeling work was his. He also got the gas range and refrigerator work.

AGAIN in the Plumbing and Heating Merchandising section you will find a description of just what is being done by plumbing and heating dealers in various sections of the country to meet outside competition. The articles not only tell what is being done to sell plumbing and heating merchandise, but also how some contractors are presenting the "quality" message of the industry to prospective customers. At the same time they are proving to their prospects that they can meet the mail order house and the direct-to-you house on a price basis.

"IF we didn't read DOMESTIC ENGINEERING regularly, we couldn't keep up with the progress of the industry.... We wouldn't be without it."—Barr & Creelman Co., Rochester, N. Y.

WHEN you reach the AUTOMATIC HEAT section you will find five special articles on various phases of automatic heating. An article on selling methods appears under the title "Know Your Customers," and another article on the subject of merchandising, but dealing with a different phase of it, is titled "Taking the Showroom to the Customer." The remaining three articles are concerned with installation problems. One of them tells how noise is corrected in radiator heating; another gives some valuable pointers in heating with gas; and the third article illustrates the use of automatic heat controls in effecting heating economies.

"FRICTION in Tees" is the title of an article commencing on Page 46 which has been developed to show the characteristics of friction, the variables which influence its amount and the results of investigations to measure it for one-inch cast iron tees. You will find the article helpful, as the method described of determining the loss of head in tees may be used with perfect safety in designing heating systems.

HAVE you joined in the "Spend for the Home in 1932" campaign? Seventy-five thousand stickers and three thousand of the posters in the campaign have already been absorbed by the plumbing and heating industry—and we've only just begun to get the movement rolling along. Orders continue to pour in from all parts of the country for the stickers, posters and electrotypes. It's a national movement now, and is growing rapidly in intensity. An article on page 41 gives a brief review of the progress in the campaign as well as a list of the materials we offer which bear the slogan.

The man who is so busy that he does not have time to read his trade paper is like the man who was so busy chopping wood that he did not have time to sharpen his axe.

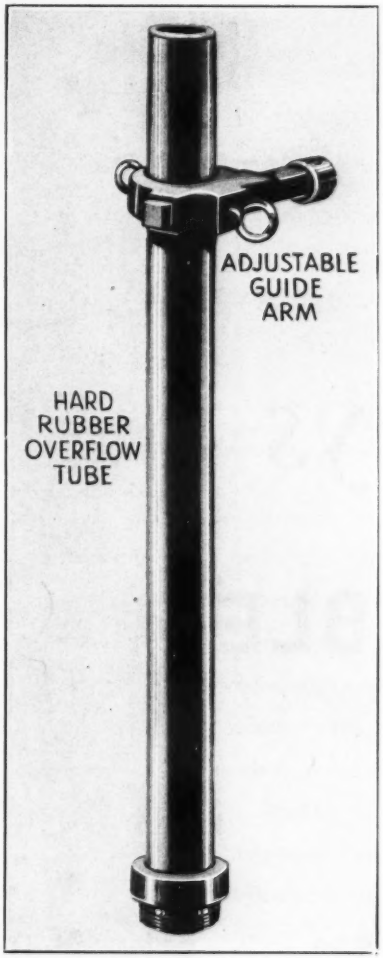
ATTENTION, PLUMBERS!

Stokes Hard Rubber

ADJUSTABLE GUIDE ARM

and

OVERFLOW TUBE WITH REDUCING BUSHING



Strictly modern

■

Meets all requirements

■

Can be swung around the tube and set at any desired angle

■

Can be lengthened or shortened; easy to connect with tank ball

ASK YOUR JOBBER

Cannot rust

■

Cannot corrode

■

Cannot turn green and will never get mouldy

■

Unaffected by changes of temperature or chemical action

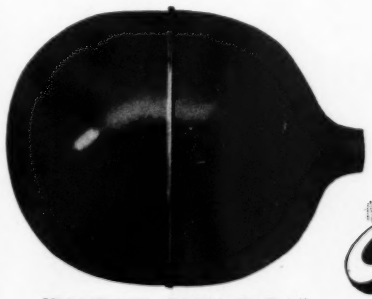
ASK YOUR JOBBER

Look for the Mark of Quality

HARD RUBBER IN EVERY CONCEIVABLE FORM

There are possibilities in Stokes Hard Rubber that you may have never suspected.

STOKES HARD RUBBER FLOATS



STANDARD OVAL FLOAT
(Patented)

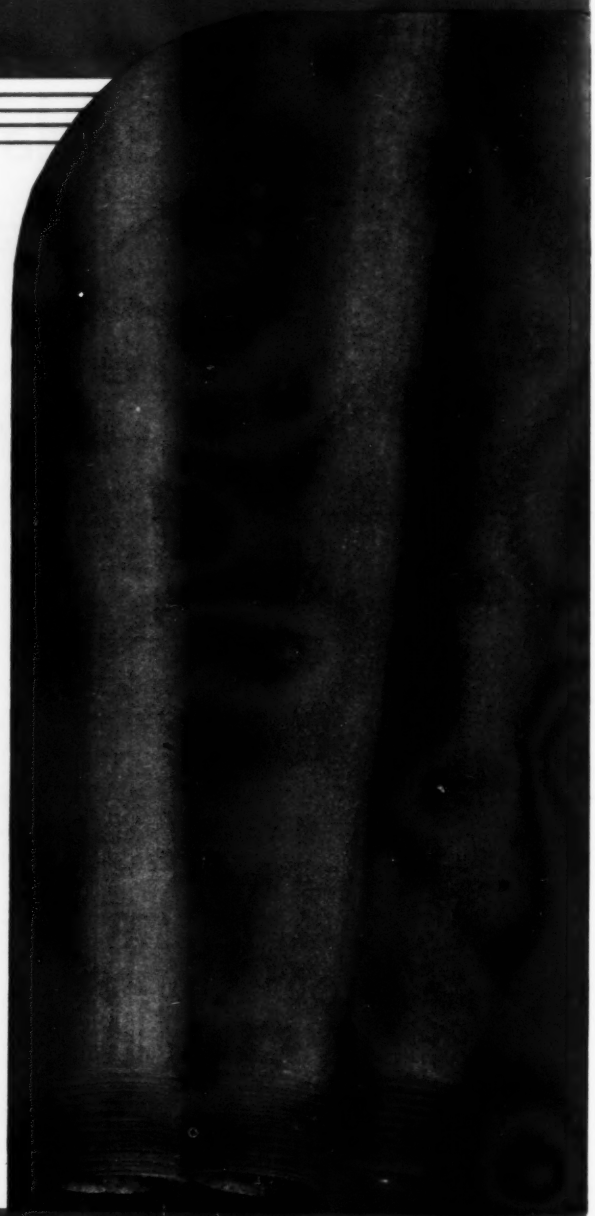
STANDARD ROUND FLOAT

Jos. Stokes Rubber Co.

Trenton N. J.

Moulders Since 1897

Canadian Plant: Welland, Ontario



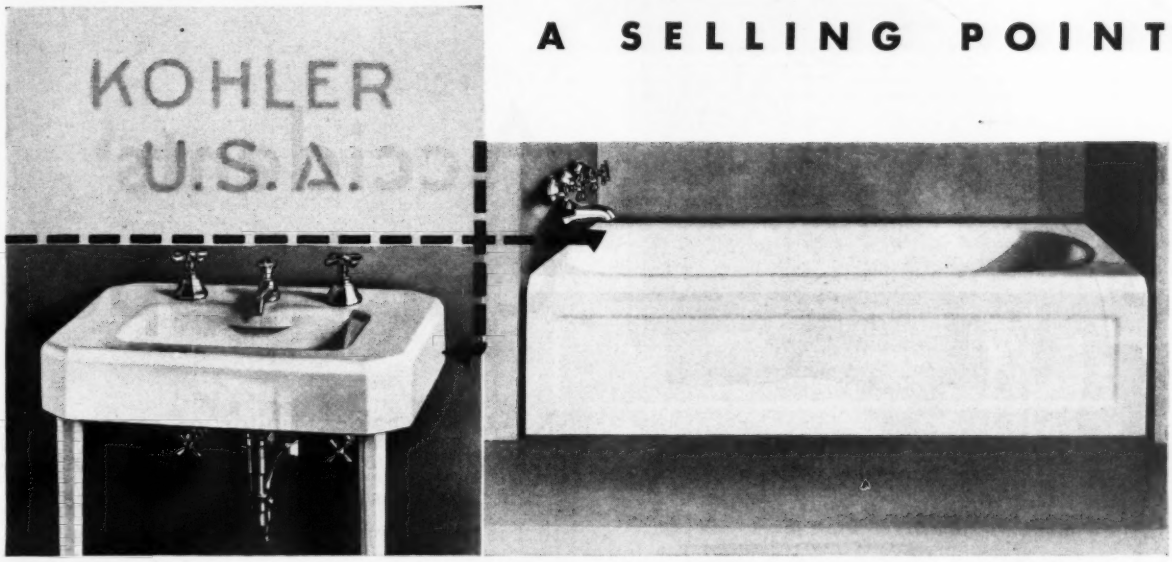
Always

DEPENDABLE

YOUNGSTOWN PIPE

THE YOUNGSTOWN SHEET & TUBE CO.
General Offices
YOUNGSTOWN, OHIO

THIS MARK IS MORE THAN A SELLING POINT



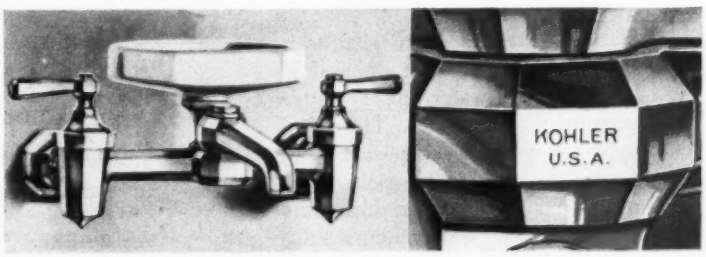
All Kohler enameled and vitreous china fixtures bear a permanent trade-mark in blue letters, permanently fused into the enamel or glaze; inconspicuous, yet readily found

WITH times as they are, the season is open on shoddy goods. Nobody knows this better than the plumbing contractor. What you have to avoid are fixtures and fittings that look right now, but mean extra trips later. You've got to show customers what you've decided yourself: that *half-right plumbing, at any price, is never good enough.*

And the best argument in a time like this is quality. Every Kohler fixture and fitting carries the word of the maker that the buyer gets full measure of what he asks for. That trade-mark stands for grace and strength in the large pieces. It points out the fine finish in each detail. It reminds customers that the real red brass fittings are simpler, heavier, longer lasting. It proves the craftsman principles back of each product. *These* are the facts that build a steady, reliable trade!

Count on the Kohler imprint to back up your fight for quality. Show your prospects that Kohler fixtures and fittings cost no more to install —and pay for themselves time and again by reducing running expenses, raising property values, and making for the convenience and peace of mind of the owner.

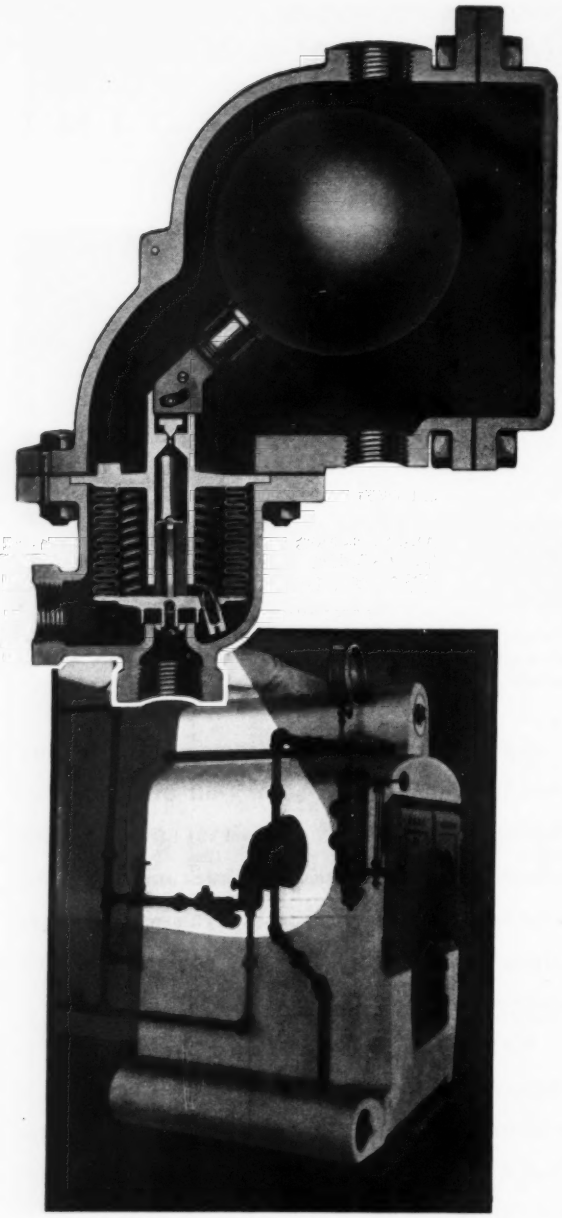
Kohler Co. *Founded* 1873. Kohler, Wis.—*Shipping Point*, Sheboygan, Wis.—*Branches in principal cities.* . . . Makers of Kohler Electric Plants. Look for the trade-mark on each fixture and fitting.



All Kohler brass fittings have the name Kohler in raised or depressed letters

KOHLER OF KOHLER

PLUMBING FIXTURES AND FITTINGS



How It Is Installed

Standard method of installation is shown above. Protector is placed 3″ below normal water line, 1″ above bottom of gauge glass. The hand valve is used for feeding water up to normal level. Webster Boiler Protectors can be installed during the winter as only a few hours shutdown is necessary.

Accidents Can Happen

NO householder, janitor or engineer *expects* his boiler to crack or burn out —but as long as there is the barest chance that it might, every boiler should be safeguarded against emergencies with the most dependable safety devices.

Boiler Protection is Essential

Boiler Protection is vitally important in modern heating installations. This is particularly true with gas and oil burning equipment, mechanical stoker, vacuum pumps—in fact automatic equipment of any kind. A *positive safeguard* is needed in case anything goes wrong with the automatic equipment during the absence of the operator. The Webster Boiler Protector, placed 3″ below the normal water line, is not intended to serve as a "feeder" but *as emergency protection.*

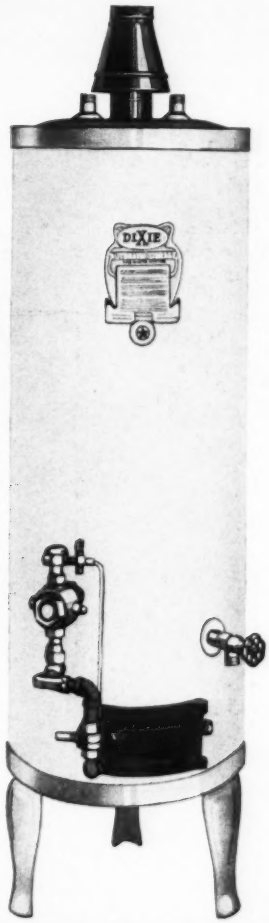
Positive action and *immense capacity* are assured by the enormous power inherent in its unique design . . . Made in two sizes for all low pressure heating boilers. Send for the Boiler Protector Bulletin.

WARREN WEBSTER & COMPANY, Camden, N. J.
Pioneers of the Vacuum System of Steam Heating
Branches in 60 principal U. S. Cities—Darling Bros., Ltd., Montreal, Canada

The Webster Boiler Protector

a P 12

A Brand New Value In Automatic Storage Heaters



THE NEW DIXIE — SERIES R

SWEEPING all previous standards aside, the new Dixie—(Series R) represents one of the greatest values you have ever been able to offer your customers. Its gleaming, modern beauty—its galaxy of major features—its surprisingly modest price give you a rare opportunity for doing a big profitable job in your community on automatic storage heaters. Every family wants this type of hot water service and they'll like Dixie—"Series R" thrift prices: (20-gallon, $45.00; 30-gallon, $55.00; 40-gallon, $65.00). Start the ball rolling by getting Dixie—Series R on display right now. Write or wire at once for full details.

THE HOTSTREAM HEATER CO., *"Makers of Heaters that Heat"* CLEVELAND, OHIO

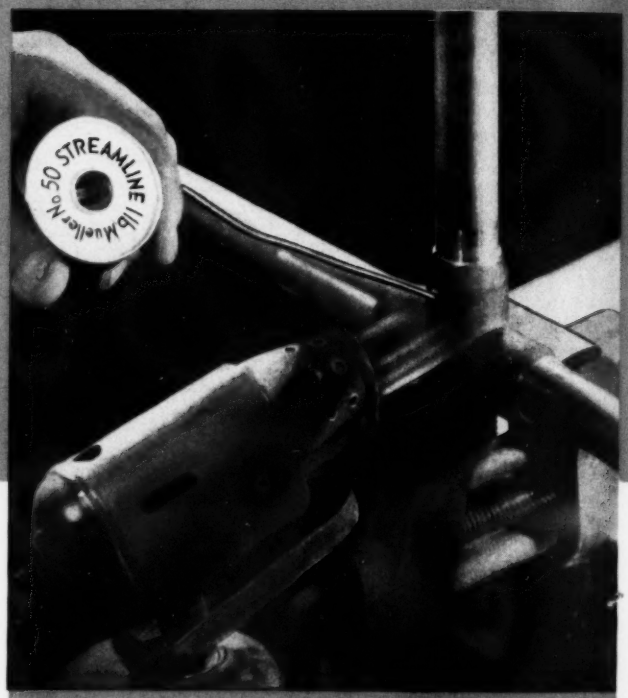
Manufacturers of a Complete Line of Automatic Storage Heaters, Tank Heaters, Indirect, Gasoline and Kerosene Water Heaters

Represented in Canada by W. H. Cunningham & Hill, Ltd., Toronto

HOTSTREAM AUTOMATIC STORAGE HEATERS

Contractors experienced in the use of STREAMLINE copper pipe and fittings are now installing these products in the average residence for only

$10 to $15 *more than the cost of iron pipe and threaded joints*



Feed the solder through the feed hole only. In no other way can you be absolutely sure by visual inspection that a perfect leak-proof bond has been accomplished. This is a feature which no other connection possesses.

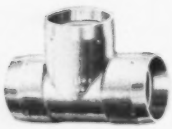
THESE men have sensed the profit opportunities that lie in a product for which their customers are ready to pay more, yet which can be installed at such an amazingly low price that the installation cost compares favorably with that of iron.

There are three reasons for this low cost:

1. No insulation. Only in exceptional cases is this necessary on hot water and steam lines.
2. Smaller pipe sizes can be used.
3. Short ends of pipe need not be wasted.

In addition, an installation made with Mueller STREAMLINE fittings and hard copper pipe means a job that is absolutely leak-proof. Rust cannot corrode it. Expansion cannot work it loose. Vibration cannot make it leak. The joint is really stronger than the pipe itself.

Mueller STREAMLINE fittings are sold in full range and in sizes from 1/4 in. to 6 in., inclusive. If you are not familiar with the profit opportunity in this new patented joint, consult your jobber or write for our catalog.



Patent 1,770,852
Patent 1,776,502
Other Patents Pending

Patent 1,770,852
Patent 1,776,502
Other Patents Pending

Mueller Brass Co.

PORT HURON, MICHIGAN

MUELLER BRASS CO. OF CANADA, LTD., TORONTO, ONTARIO

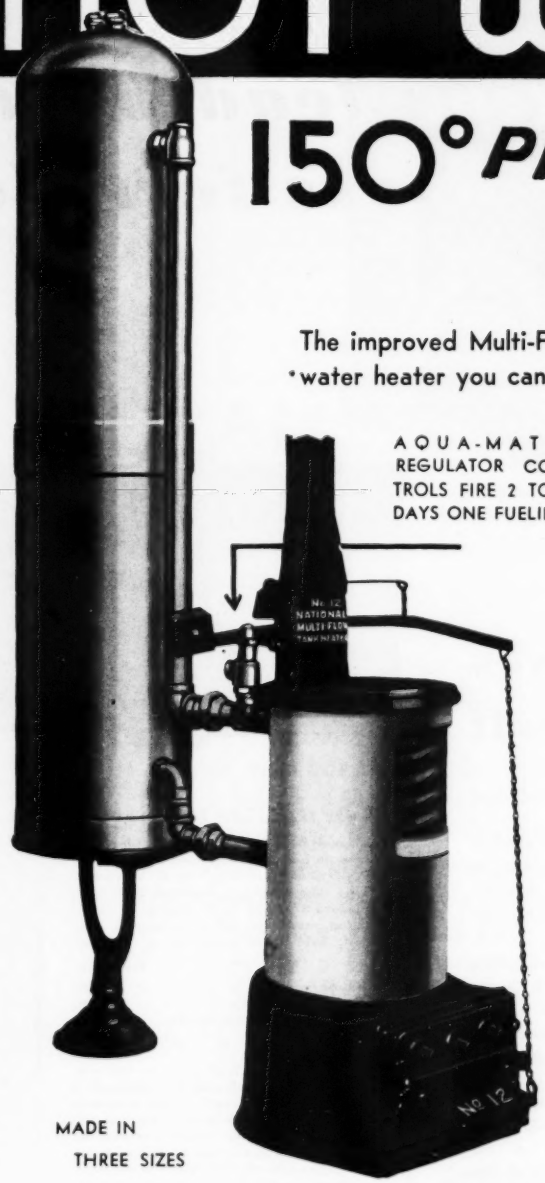
Three Generations of Brass Making (139)

Faster HOT WATER

150° PIPING HOT

MADE POSSIBLE WITH THE COPPER COIL

The improved Multi-Flow Tank Heater is the greatest LOW COST hot water heater you can sell. Delivers piping hot water at 150° for every domestic need. Built to last with copper coil, bronze fittings, fire brick chamber, triangular grates, heavy shell in red vitreous enamel. Burns coal. Used also in combination hook-up with radiator to heat rooms or garage.



MADE IN THREE SIZES

Aqua-Matic control tends fire 2 to 3 days with one fueling in average home — hot water on tap all hours.

Good profit in heater and installation. For prices and information write us or see your jobber.

THE NATIONAL PIPE BENDING CO.
Inc. 1883
174 River Street New Haven, Conn.

SOLD BY THE LEADING JOBBERS

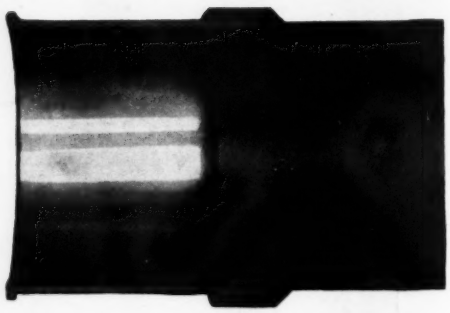
150° Hot Water 24 HOURS PER DAY

NATIONAL MULTI FLOW TANK HEATERS

ALSO INSTANTANEOUS AND STORAGE HEATERS

NEW...

combination lead bend and brass ferrule



No joint to wipe... saves money... easy to install

MEMBER OF LEAD INDUSTRIES ASSOCIATION — WELD ON LEAD

This new Combination Lead Bend and Brass Ferrule has a number of distinct advantages.

First, it is a money-saver because it can be purchased at a price lower than what you now pay for the lead bend and the brass ferrule separately and wiping the two together. It also takes some of the uncertainty out of estimating, for the cost of each outlet is the same.

Second, it is a time-saver because it comes to you as a complete unit...no joint to wipe. It can be installed more quickly and, therefore, a greater number of outlets can be put in place in a day.

Third, it is a better type of outlet as may be seen in cross-section illustration. The joint is smooth on the inner face and lapped in the direction of the flow. There are no beads of solder to interfere with the free passage of water...no places for solid waste matter to collect. The joint, moreover, is doubly strong because it is reinforced, or bonded, *inside* as well as outside. Under test of 100 pounds water pressure, this double-bonded joint withstood the strain without the slightest sign of failure.

We also manufacture a straight-piece Combination Lead and Brass Ferrule which has the same double-bonded joint and which gives the same time-saving and money-saving advantages.

Both articles are made in 4", 8 lb. lead and the heavy ferrule is of high quality brass.

New Outside Diameters

National Lead Company's lead pipe now comes in new, increased outside diameters in all sizes from 1¼" to 2" inclusive. These new diameters conform to recommendation of the Lead Industries Association, and will safely withstand constant, cold water pressures as follows:

	Per Sq. In.
A, or Strong	50 lbs.
AA, or Extra Strong	75 lbs.
AAA, or Double Extra Strong	100 lbs.

• • •

When purchasing lead pipe, it will pay you to look for the Dutch Boy trade-mark. This familiar trade-mark is your assurance of lead pipe of high quality, proper wall thickness and correct weight per running foot. National Lead pipe is marked every few inches with the Dutch Boy trade-mark and the name of the National Lead Company.

NATIONAL LEAD COMPANY

New York, Baltimore, Buffalo, Chicago, Cincinnati, Cleveland, St. Louis; National-Boston Lead Co., Boston; Georgia Lead Co., Atlanta; Gibson & Price Co., Cleveland; National Lead & Oil Co. of Pa., Pittsburgh; John T. Lewis & Bros. Co., Phila.

LEAD PIPE

THE ROYAL RED BLAST BOILER WITH BLOWER

The ROYAL Red Blast Boiler with blower and boiler control, all in one unit, offers contractors an unusual opportunity for replacement sales. It helps you get new customers. It burns the cheaper sizes of anthracite with great efficiency and makes possible a large saving in fuel bills.

Other features of the ROYAL Red Blast are its long combustion and flue travel; attractive insulated jacket; easily assembled with individual tie rods; 18" and 28" sizes. Available, if desired, without blower and controls in the RED-GLO Boiler.

MANUFACTURED BY

HART & CROUSE CO.

UTICA, N. Y.

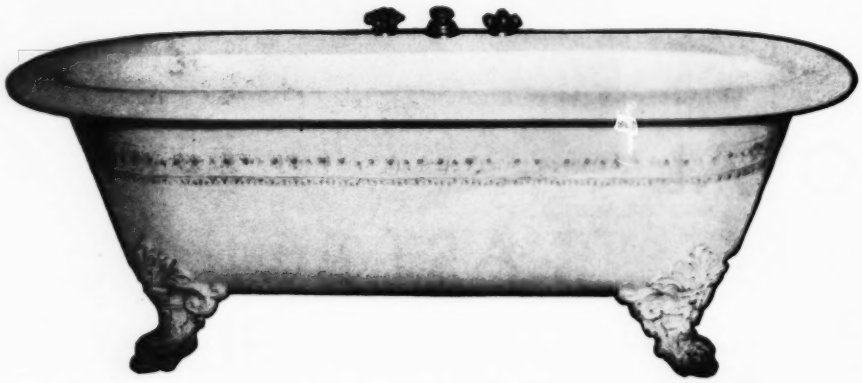
Boston New York Washington Detroit Pittsburgh Philadelphia

A COMPLETE LINE OF FURNACES AND BOILERS FOR EVERY TYPE OF BUILDING

Warm Air Furnace | 28" Sectional Boiler | Large Sectional Boiler | 28" Red-Glo Boiler | 18" Red-Glo Boiler | Round Boiler

Old Stuff

won't sell this year



This was President McKinley's bathtub. Good enough for the White House . . . then . . . but try to sell it *this* year!

People aren't buying old stuff these days. They only spend their money when attracted by new, modernized merchandise.

Pumps are no exception. The same pumps that sold when people were spending freely . . . have lost their appeal under present conditions.

That is why we designed an entirely new line of pumps . . . CID PUMPS . . . for deep and shallow well water systems . . . in all sizes. This is a completely *modernized* line of pumps. The new features stand out just like the new features of this year's automobiles. CIDS are new in design and new in value.

We built reserve into these pumps . . . reserve capacity, power and strength for years of trouble-free operation. We made them the most easily serviced pumps on the market. And on top of that . . . we established record-breaking low prices!

As a result . . . *our* water system sales are going *way ahead* of last year's. If you want *yours* to do the same thing, write and get full details, or ask your distributor.

And be sure to see our full page ad in the March Country Gentleman.

GOULDS

RECORD BREAKING LOW PRICES

•

ATTRACTIVE DISCOUNTS

	LIST PRICE
Shallow well Cid 250 gallon per hour Pump complete with ¼ h. p. 110/220 volt 60 cycle AC electric motor and automatic control for direct from well service.	$65.00
Same as above with 18 gallon galvanized tank and fittings.	$77.50
With 42 gallon galvanized tank and fittings.	$90.00
Other Shallow Well Cids, 500 gallon and 750 gallon capacity, from	$90.00
Deep Well Cid, 6″ stroke pumping unit with ½ h. p. 110/220 volt 60 cycle AC motor.	$100
Same as above with 42 gallon galvanized tank and automatic control.	$145

(Air chamber on deep well pumps, $5 extra)

CID

The pump with reserve capacity, reserve power, reserve strength.

•

AND OLD METHODS WON'T SELL, EITHER

DISTRIBUTORS will be particularly interested in this statement of policy.

For the first time in the history of the pump business, the distributor is protected by a franchise that assures him the full support of the manufacturer and the full rewards of his sales efforts.

Goulds sales policy is clean-cut in this respect. Its main provisions are:

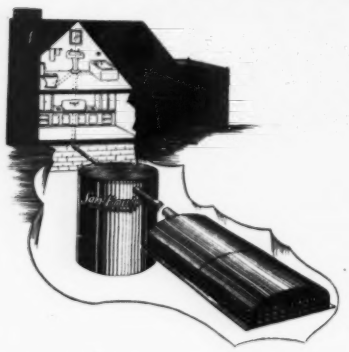
1. Exclusive territories.
2. All orders and inquiries referred to distributors.
3. Established resale prices.
4. One flat dealer discount on all items.
5. Catalog mailed to distributor's dealer list annually.
6. Continuous advertising in leading dealer and consumer publications.
7. Dealer direct mail campaign for distributor's use.
8. Education of distributor's salesmen.

Sales policies that give the distributor less protection are old methods that have no place in the 1932 picture. If the distributor must intensify his efforts in order to develop the potential business, he needs intensified protection. He finds it in the straightforward equitable Goulds sales policy.

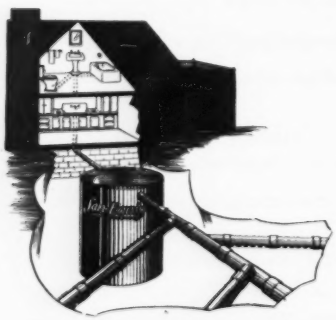
PUMPS INC.

SENECA FALLS · NEW YORK
WORLD'S LARGEST PUMP SPECIALISTS

The Most Important Part of the Unsewered Job...



The San-Equip System above consists of a scientifically designed San-Equip Septic Tank and a San-Equip Drain Pool. This is an ideal system where the soil conditions are favorable and where there is no danger of water supply pollution. The Pool provides necessary storage capacity and drainage area, is easily installed, saves labor and materials, and has many advantages over home built pools.



Here is a San-Equip Septic Tank with a Drainage Field of San-Equip Filter Pipe. An improved, unbreakable pipe, perforated to increase the drainage area 12 to 20 times per foot over the ordinary tile. Tight joints prevent clogging and preserve alignment. Lays quicker with no breakage. Fittings permit a varied layout.

★ A Certificate of Approved Equipment backed by the largest manufacturers of home disposal systems accompanies every San-Equip System as a permanent record of the Installation.

- - - a Complete Disposal System

IF the disposal plant fails to operate properly, the rest of the plumbing is useless, regardless of its cost. Health, comfort, and convenience depend on the sewage disposal plant.

That's why it is important then that you sell the complete sewage system. It is equally important that you sell the best sewage disposal system—the system that will never give trouble, that is always on the job. Without this reliability the rest of your plumbing may be continually out of use.

And that isn't the only reason for considering the sewage disposal system first in making your estimate. You get increased profits—because you sell a complete San-Equip System, instead of a cheap septic tank. You profit by the good will of the customer, and by selling the idea of using quality materials, you put yourself outside cheap competition.

You can recommend San-Equip Systems with confidence. San-Equip is the largest producer of septic tanks. San-Equip is the only nationally advertised, trade marked system. San-Equip supplies an adequate field service, to help you with your problems. And San-Equip has been approved by national and state health officers everywhere. In fact, San-Equip's leadership in this field is so firmly established, that over 50% of the sewage disposal systems installed by leading plumbers in the United States bear the San-Equip Trade Mark.

Get the full facts about San-Equip today. Mail the coupon for a complete description of the line and for facts about the big suburban market that is open to you. No cut-throat competition to worry about. And extra profits to reward you.

■ MAIL THE COUPON FOR COMPLETE FACTS ■

San-Equip ★ Certified SEWAGE DISPOSAL

THE SAN-EQUIP CO.,
722 BRIGHTON AVE.,
SYRACUSE, N. Y.

Please send me full details about San-Equip Sewage Disposal Systems, and your plans for getting more business and increased profits from the suburban market.

Name .....

Address .....

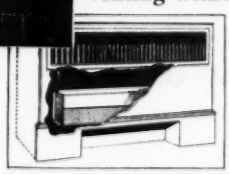
City ..... State .....

"LIFT THE SHELL"

See why the TRADE has enthusiastically OK'ed

The AIRPORT

Heating contractors, architects and engineers have for years associated the name "Hoffman" with the finest in heating specialty design and service. Now, in the Airport, Hoffman offers a new air valve . . . with all the well-known Hoffman performance qualities . . . *yet priced to meet competitive conditions.*



The Airport embodies an adaptation of the Hoffman double shell construction — a patented feature found only in Hoffman Venting Valves. This construction assures quick venting without noise or the slightest water leakage. Factory-adjusted and tamper-proof, the Airport is *guaranteed to operate efficiently for five years.*

With straight shank connection, the Airport is particularly well fitted to vent Fin or Extended Surface Convectors. Its thermostatic member, being extremely sensitive to slight temperature changes, vents *all* air, a very important factor in obtaining full heating value from this type of heating unit.

Get acquainted with the Airport—it is your assurance that careful design and installation work will not be handicapped because of inferior air-venting equipment.

"Lift the shell" yourself—we will gladly send a take-apart model which shows why the Airport is a superior product. Convince yourself with this model—then use it to convince your customers. Just send the coupon.

HOFFMAN Specialty Company, Inc.

Also makers of Hoffman Controlled Heat and Hoffman-Economy Pumps

HOFFMAN SPECIALTY COMPANY, Inc.
Dept. RX-80, Waterbury, Conn.

Please send me price list and take-apart model of the Hoffman Airport Valve.

Name .....

Address .....

City ..... State .....

HALF TRUTHS

We are living in an age of great changes, particularly in the field of applied mechanical arts. Developments that today cause little comment would make our forefathers gasp with astonishment. Many of these changes are improvements over the old methods. Many have not yet proven themselves, and still others have already been proven impractical and unsound.

Most of us are too willing to accept the new and the unusual. Skeptics are unpopular but an excellent deterrent to the natural desire to accept statements made under the stress of promoter enthusiasm.

Half truths must be proven before progress is assured, otherwise we have the danger of error rather than progress and failure rather than success.

Don't be misled therefore by claims that this type or that type of a piping connection is the only perfect connection. There is little truth in such exaggerated statements and well can one question the manufacturer who resorts to such broad claims to sell his products.

Accept not a comparison between the shining outstanding example of one practise as against a commonplace example of another practise. Proceed cautiously and with an open mind.

THE TOLEDO PIPE THREADING MACHINE CO., TOLEDO, OHIO

NEW YORK OFFICE: 72 LAFAYETTE STREET

Our Industry

CHANGING AN INDUSTRY

Changes which directly affect the business of every reader of DOMESTIC ENGINEERING are taking place day after day. Some of these have been going on openly for months. Others are just gathering momentum.

Prices of Products and Labor

The more evident changes include reductions in the price of products which have finally brought these to a level sufficiently attractive to the buyer to justify the hope of increased purchases by the public.

In the past few weeks, a movement to lower building wages has gone ahead. Probably the voluntary reduction taken by the strong railroad unions led to a similar decision by leaders of the building unions. Already in about 15 cities of 100,000 or more population, the building trades have lowered their scales.

Lower Prices for Homes

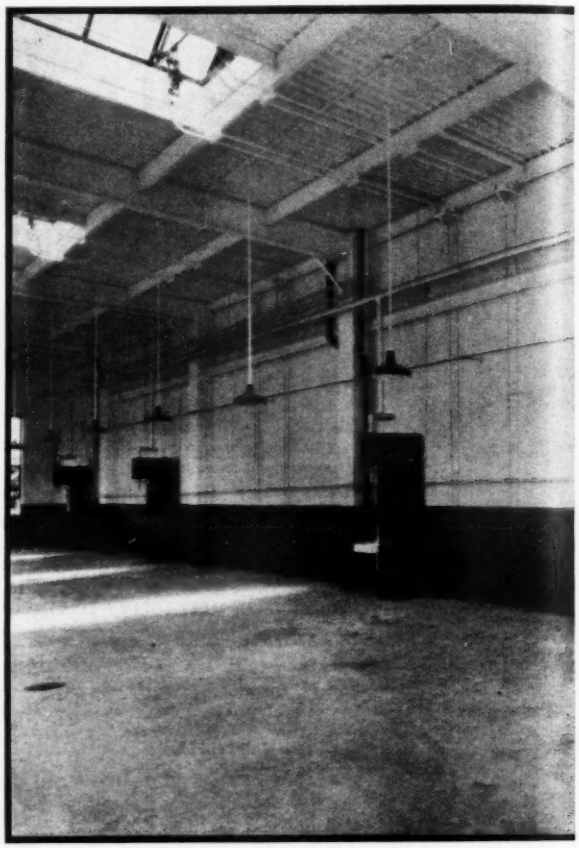
From several directions, news is coming to show the possibility of even more important changes in the building industry. The experience of other industries, which have built successfully on the principle of steadily lowering prices to the public, is attracting men both within and without the industry to an analysis of the cost of the average American home.

Many of these men feel such costs are too high and that fundamental changes in design, in construction methods, in materials used, in financing, in so called large scale operations—all of these channels offer the means of bringing home prices down to a lower and more attractive level.

New Business Methods

The past two years have left their imprint on every contracting, wholesaling and manufacturing company in the plumbing and heating industry. It is quite likely that the final result will be to make over many of the practices of the building industry to which most of us have been accustomed.

Here is a battery of unit heaters with recirculating boxes. The piping connections are quite apparent in the right hand view



Unit Heater Problems

WHEN a unit heater of the disc fan type delivers a small air volume with a low outlet velocity and a high outlet temperature, and under these circumstances when it does not have a recirculating box, difficulty with the heating installation is likely to result. In fact, these conditions are listed as very important causes of trouble to be overcome since they may be expected to be present in a large percentage of future installations. Stores, offices, shops, auditoriums, schools, churches and other places where heaters are being operated at reduced speeds and outlet velocities to obtain quiet operation are places where these conditions are found.

Little trouble is experienced with overhead heaters of high air volume capacities and high outlet velocities when they are installed correctly in rooms where velocity noises are not objectionable, as large volumes of air handled at high velocities with low outlet temperature permit of obtaining excellent distribution with a low rate of rise in temperature from the floor to the ceiling.

Where quiet operation is desired, however, variable speed overhead units are often installed in rooms having ceiling heights of 14 ft. to 30 ft. Such installations heat satisfactorily in the warming-up period, while the units are running at top speed, but uniform temperatures can not be maintained with these fans running at low speed, without recirculating boxes.

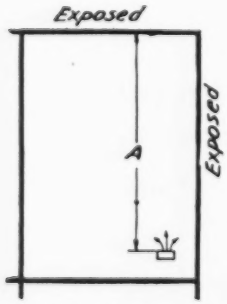


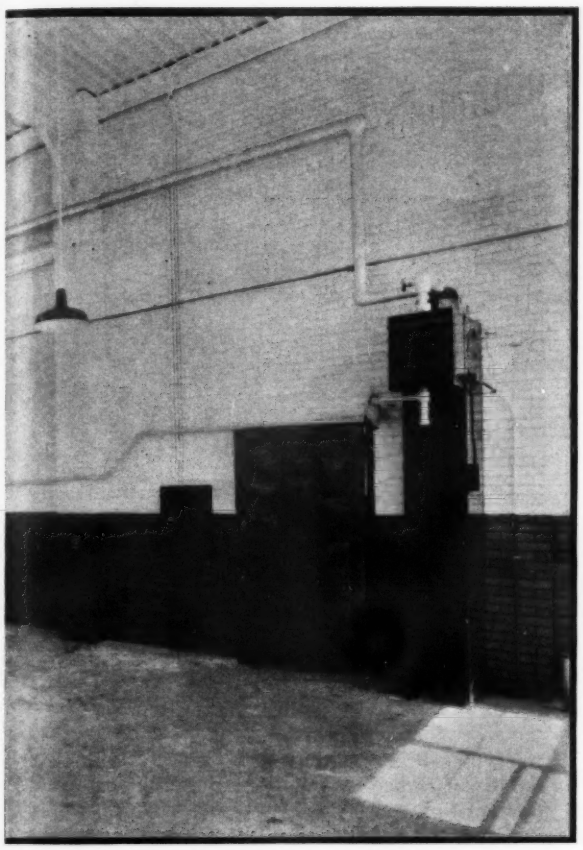
Fig. 1 — This shows the correct location of a unit heater in a small room and in relation to two exposed walls

This is because the decreased air velocity permits the air to heat to a temperature higher than normal with consequent quick rising to the ceiling. This causes an excessively high ceiling temperature.

Since many operators desire to maintain their design temperatures with units operating quietly, and since one must sacrifice air volume and velocity when eliminating top speed and velocity noise, troubles are experienced with overhead heaters of this type without boxes.

Assuming all other causes of trouble are not present and the overhead units have been otherwise located as described later in this paper, low velocity or low air volume, high Btu. heaters will satisfactorily heat a job quietly if the air volume capacity is equivalent to a complete change of air every ten to twenty minutes, depending upon the amount of exposure and the latitudinal location of the job, provided recirculating boxes are used which permit the heaters to get air from the floor. Another provision is that the overhead unit must be installed with the bottom of the unit about 7 ft. to 9 ft. above the floor.

During the last heating season, on what appeared to be faulty installations of several makes of heaters where efficiency was being sacrificed to obtain quiet operation, the addition of recirculating boxes corrected them. In each case the air volume was sufficient but the velocity was insufficient, and the temperature was too high to penetrate the cold air from about 5 ft. to 6 ft. down to



By
M. J. STEVENSON

and Their Solutions

the floor. The heaters were raising the temperature at the ceiling from 50 to 60 per cent higher than the design temperature for that level. The addition of boxes put the lower air in motion, gave the heaters colder air to handle, permitted the discharge of air at lower temperatures, and reduced the ceiling temperatures to normal for unit heaters. To obtain the maximum in quiet operation, recirculation boxes should be constructed of some insulating material.

The incorrect location of units is a general cause of trouble. This is so regardless of whether the unit is or is not equipped with a recirculating box. If an installation is faulty and if all other causes of trouble are missing, very likely the difficulty will be found due to:

(a) Discharging towards but too close to the exposure.
(b) Blowing away from the exposure.

By changing the location of the unit to a point blowing towards the exposure, but from a sufficient distance to prevent a direct blast of heated air against the exposure, the fault often can be corrected. Blowing heated air directly against the exposure from a unit only a few feet removed will cause the unit to heat the exposure to higher than design temperatures. This causes a tremendous increase in the rate of heat transmission to the outside, with a consequent greater demand on the boiler. If a large percentage of the exposure consists of glass or doors it is readily understood the transmission losses will be considerably greater than estimated. If the unit is placed far enough away from the exposure to permit heating first the cubical contents, the heated air will bank up on the exposure and the heat transmission loss likely will be even less than figured.

A smoke test on units installed in this manner (high velocity disc fan units as far as 80 ft. from the exposure) will disclose only a slight air movement at the exposure. Furthermore, steady banking of heated air on the exposure will be noticed.

The writer has in mind several specific jobs which were found to be not heating satisfactorily. In one case the units blew away from the exposure, and in another case they blew towards the exposure, but were too close to it. The jobs were made perfect by changing the locations of the units. A drop in steam requirements is always noticed with such corrections.

On several other jobs where high velocity units were being used to offset the heat loss of large doors required to be opened frequently in severe weather, they were moved back from a 10 ft. or 12 ft. distance to a 20 ft. or 30 ft. distance, or were set to wipe the exposed surface. Then they blanketed the exposure more effectively with heated air and a reduction in steam consumption resulted.

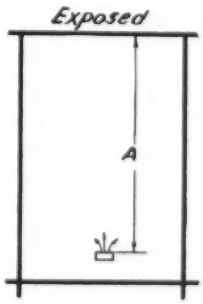
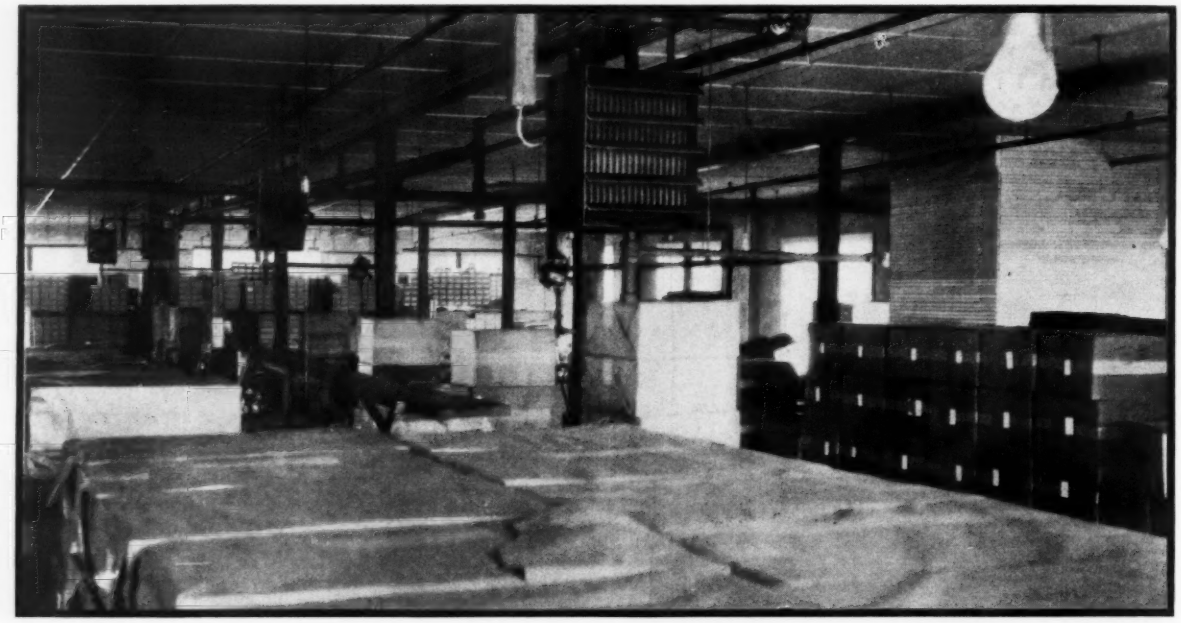


Fig. 2—Here is a small room with one exposed wall which requires one unit. The unit is blowing toward the exposure

On still other jobs where units with and without boxes were located so that they blew away from one side of the doors or other exposure, the correction consisted of turning the heaters around to wipe the exposure. In each case a no-



This unit heater installation was made in a warehouse. To a certain extent, the layout is comparable to that shown in the sketch of Fig. 7.

ticeable increase in room temperature resulted. This last method is not considered quite as effective as blowing towards the exposure from the proper distance, as it heats the exposure to higher than design temperatures with a consequent greater transmission loss.

LOCATION OF UNITS

In determining the location of units the following requirements must be considered: a comfortable temperature must be maintained at the breathing line with as low an operating cost as possible; the temperature must be uniform over the entire area of the room and the units and piping must not interfere with the service for which the building is designed.

The relative importance of these requirements and the method of satisfying them varies with every job. It is therefore impossible to make any fixed rules which will apply in all cases. However, there are certain general principles for determining the proper location of the units for best operating economy and even heating. These principles are based on the practical experience of a number of engineers on a wide variety of installations which have been located in all sections of the country.

With overhead units the maximum permissible height above the floor depends upon the velocity and temperature of the air leaving the heater. Units having a high outlet velocity and a low final temperature can be placed somewhat higher than low velocity high temperature units because of the greater force behind the air.

If the ceiling height is more than 50 per cent greater than the recommended maximum height of the overhead unit, recirculating boxes should be used.

An analysis of a wide variety of successful installations indicates that best results generally will be obtained with the units blowing toward the exposed walls, either directly or at an angle, as in Figs. 4 and 7.

With either of these arrangements the distance "A" from the face of the unit to the wall, along the line of air travel, is important. If this distance is too great the space near the walls may not be heated sufficiently.

BOILER CAPACITY

The arrangement shown in Fig. 3, with the units placed along the walls, blowing parallel to the exposure, is sometimes used where it is impossible to place the units and piping back in the room as in Figs. 7 and 4. On account of the warm air sweeping the exposure the heat loss and steam consumption is higher with this arrangement, but good heat distribution is obtained if units of ample capacity are used. The installation cost is, of course, somewhat higher than with Figs. 4 and 7, on account of the increased piping.

Units should never be placed along exposed walls blowing inward, except when installed in connection with air mixing boxes.

Three commonly used methods of taking care of small rooms requiring only one unit are

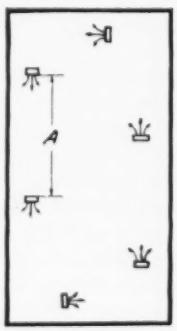


Fig. 3 — (Left) In this building, units in the center are impractical because of the lack of width. The units blow parallel to the exposure

Fig. 4—(Right) This building also has four exposures. As contrasted to the arrangement in Fig. 3, the units blow at an angle toward the exposure

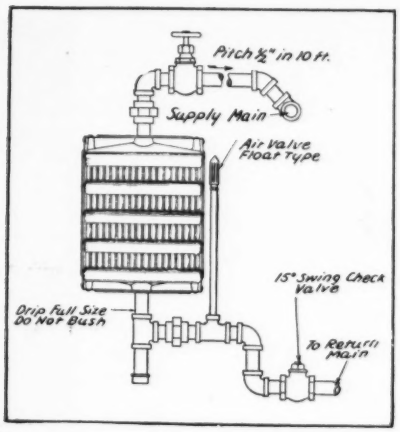


Fig. 5 — This indicates several fundamental piping features which should be followed to insure the correct installation of the unit

illustrated in the drawings of Figs. 1, 2 and 6.

Where two or more units are used they should not be installed in such a way that the circulation from one unit acts against that of any other. Note that in Figs. 3, 4 and 7 the units assist each other in maintaining circulation.

Until recently perhaps the greatest percentage of unit heater trouble jobs has been due to insufficient boiler capacities.

It has been customary to size boilers for unit heater jobs using the equivalent direct radiation (E. D. R.) of the units, based on 2 lb. of steam supplied and 60 deg. Fahr. entering air. It appeared it was not realized that during the warming-up period the room temperature might be down to 40 deg. Fahr. or even less in the North and that a higher boiler pressure would be maintained, placing 5 lb. to 10 lb. at the unit. During the warming-up period all unit heaters have a condensing capacity of 20 to 35 per cent greater than during the maintenance period when they operate under the conditions which are assumed by the unit heater industry in applying a base rating for units.

TRAPS

Jobs, numerous in their number, have been corrected with the addition of the lacking boiler capacity.

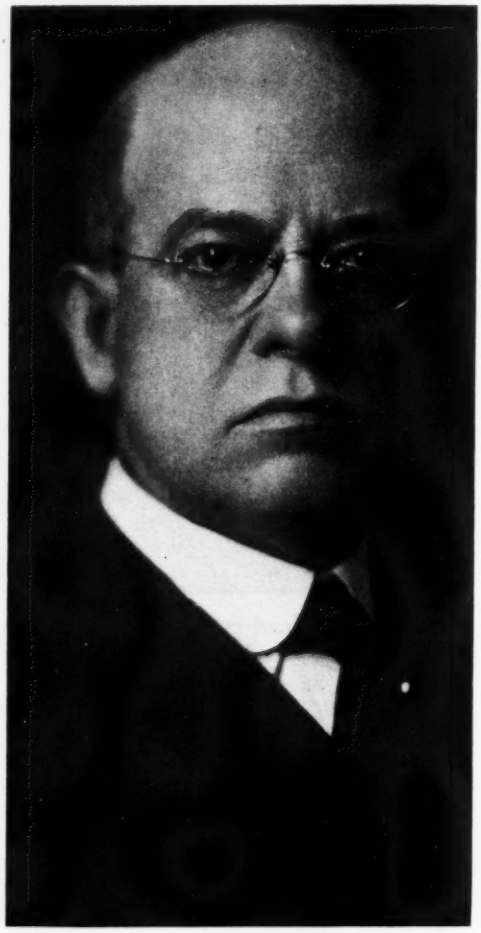
Those responsible for the selection of boilers should add into their boiler load the capacity of units at top speed operating under the conditions that will exist in the warming-up period. They should never use the base rating load for boiler selection.

When light weight unit heaters first came into the field, and during a few years after their introduction, troubles were experienced with unit heater installations equipped with thermostatic radiator traps sized on an

(Continued on Page 102)

In this garage installation located in Detroit, Michigan, the unit heaters were required to counteract the effect of opening the large doors seen in the rear wall

80 Years of Success in Contracting



E. C. Barrett

IN THE December 26, 1931, issue of DOMESTIC ENGINEERING appeared an historical sketch of Barr & Creelman Co. of Rochester, N. Y., a successful plumbing and heating concern, which has just celebrated the fiftieth anniversary of the founding of its business. At that time F. J. Weider, vice president and general manager of the company, wrote to tell us that members of the concern have been and are constant readers of DOMESTIC ENGINEERING, saying: "If we didn't read DOMESTIC ENGINEERING regularly, we couldn't keep up with the progress of the industry. Plumbing is not different from any other business; you can't stand still in it. You must either go ahead or fall behind. The only way you can keep progressing intelligently is to read the trade papers regularly. Their job is to inform their readers of changing trends and conditions. DOMESTIC ENGINEERING does this job excellently. We wouldn't be without it."

The plumbing and heating department of the Barrett Hardware Co. of Joliet, Ill., has had an experience somewhat similar to that of Barr & Creelman Co. The members of this concern have also for many years been constant readers of this business paper, and the history of their business is also a record of success by keeping pace with progress.

FIRE DESTROYS BUSINESS

W. F. Barrett, the founder of the Barrett Hardware Co., came from the East to Joliet in 1851, and in the same year, shortly after his arrival, opened a modest hardware store in a small wooden building on what was then the only business street in the place. He made a comfortable living and as the village grew the business district shifted, and he followed, moving in 1873 to a location opposite the county court house. Here after five years, a disastrous fire destroyed the business but, with the optimism of our sturdy pioneers, he went into temporary quarters and when the burned building was rebuilt moved back to his former location.

During this period, like all small town hardwaremen, he did sheet metal work such as tin roofing and gutter work, and also some pipe work in connection with the installation of well pumps.

About 1878 his oldest son John O. Barrett joined him in the business and being forward looking and aggressive and noting that their small shop was called on to do all kinds of mechanical jobs sensed the possibilities of expanding the scope of their work.

Under the supervision of an English plumber, named James Wild, a start was made in the plumbing business in 1883 and about this time Edward C. Barrett entered the shop and served as an apprentice and since learning the trade has continued in direct charge of the plumbing and heating to the present time.

FIRM ENTERS HEATING FIELD

In 1883 the construction of a new court house led the firm to enter the heating field, securing the services of W. F. Porter & Company of Minneapolis, Minn., who made boilers and radiators, and under their supervision installed the heating plant, which in that day was a very considerable achievement.

Eighteen eighty-four found the firm occupying a new and finer location in a building—66 x 100 ft—three stories in height of which they occupied the first floor and basement, but after ten years the growth of the business required an additional two stories in height,

W. F. Barrett

Joliet plumbing and heating contractor began business in 1851 — Finds "direct-to-you" competition and loose credits are biggest problems to-day—Business paper is help in growth and success

50 x 66, and a little later the entire building was taken over and occupied until in 1908 when a second disastrous fire destroyed the building and contents.

Hurried work established the firm in temporary quarters where, within three days, work in all lines was being done and materials being supplied.

SAW NECESSITY FOR STUDY

Following this a site was selected and purchased and a four-story and basement building, 66 x 150 ft., erected which was completed and occupied in 1909. Here the business is still conducted. As a result of the two expensive experiences, this building is equipped with automatic sprinklers which have twice functioned to halt what might have been serious fires.

From the death of W. F. Barrett, the founder, in 1879 until his own death in 1928, the business was in charge of J. O. Barrett, who was succeeded in the presidency by W. F. Barrett, a son of Edward C. Barrett, the latter remaining as secretary-treasurer.

In the early days the work done was naturally rough and crude and little was done in the matter of venting and provision for cleanouts, but E. C. Barrett was progressive as well as aggressive, and he early saw the necessity of study of the business. He was ever a member of the Master Plumbers' Association and in the early days when a convention was not so well attended, a few members such as he, the late John Blake of Rock Island, the late Geo. Poehner of Joliet, W. J. Hilliard of Elmhurst and C. D. Brownell of Urbana conducted the actual sessions.

HAS SEEN MANY CHANGES

Trade literature was always a source of knowledge, and the top of his desk never was littered with unopened trade papers. Instead at one side they were placed for ready reference following their leisurely perusal at home, and for many years the favorite has been and is still DOMESTIC ENGINEERING.

As a result of this study the necessity of quality work was early perceived and has consistently been done for years, and further, the broadest kind of a guarantee has backed it.

The firm has seen many changes not only in the mechanical end of the trade but in the business side as well, and while some are for the better, many are to be deplored. The progress from the earthenware basin on a board covered with zinc and the zinc lined wooden tub and pan closet to the vitreous lavatory, built-in enameled tub and glistening white toilet of the present day is greatly to the credit of the trade. On the other hand the loose credits of some supply houses leading to the entering of the business by non-qualified men is a disgrace and one which should be remedied.

The greatest problem of the present time is the "direct to you" plumbing and heating houses. The Barrett Hardware Company always have been merchandisers and have never refused to sell materials whether installed by them or by others although in most cases the work followed the sale of materials, but with the "direct to you" selling at or below the cost to the trade, the way is hard for the established plumber. To compete the plumber is forced to eliminate a profit, and as seemingly supply houses have a limited mark up it would seem that the manufacturers should place the trade in position to meet this competition.

During their long time in business the firm has executed many large contracts including schools, churches and public buildings, but within the last few years so many contractors have seemed satisfied to accept the publicity of doing a large job in lieu of a real profit—that their work has been confined largely to the smaller work in new houses and to modernization jobs.

Clock Flushes Fixtures

ONE unusual feature of the plumbing installation in the new Southern California Edison Building, Los Angeles, is the urinal flushing system which is operated under a combination of an electric clock and thermostatic relays and valves.

The system represents a new thought in the use or combination of an electric clock and thermostatically operated equipment and is the first urinal flushing system of its kind in Los Angeles. A similar system is installed in the new Shell Oil Building, located at San Francisco.

Flushing of urinals at eight-minute intervals is achieved in the manner shown in Fig. 2. Installed on the gage board in the basement switchboard room is the urinal flushing clock with an electric movement. This clock is fitted with six relays, air valves and boosters for the automatic operation of the pneumatic flushing valves on the water supply lines to the 12 batteries of urinals in the building. The boosters speed up the exhausting of air of the branch lines. The air line at the clock is fitted with a three-way switch permitting the manual flushing or closing of the urinals at any time.

The urinals are flushed in relays of two floors at a time, operating on a staggered plan, thus allowing ample time for water to be carried off.

The water supply line to each battery of urinals is fitted with a valve which normally is closed. Each valve is equipped with a disc and an air pressure of 15 lb. is required to operate it. The valves normally are closed as a protection measure in case the electricity is shut off or in case the compressor should fail to work.

A gate valve is installed in the water supply line ahead of each flushing valve, while a separate valve is placed in the line to each urinal, thereby evenly distributing the water and cutting down the chance of overflow.

These flushing valves are installed in the utility space behind the urinals or where necessary in the furred spaces, access to them being provided by the installation of metal access doors. The valves are connected to the clock with the necessary air piping for the operation of the flushing system. All of this is shown in Fig. 2.

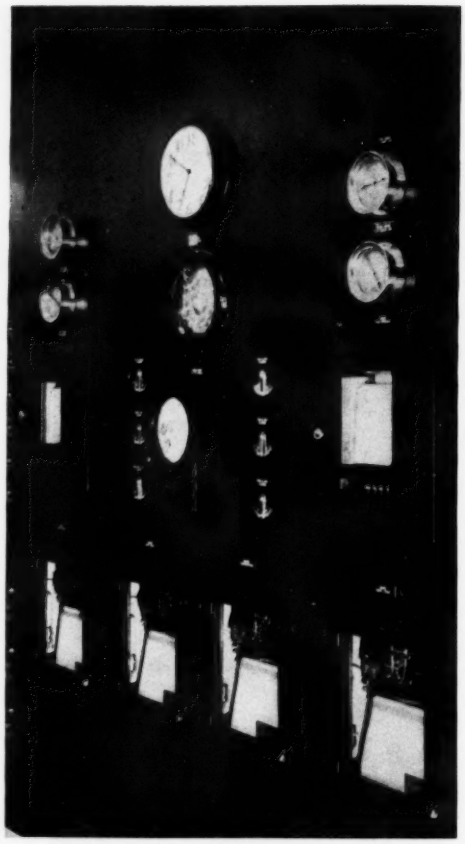
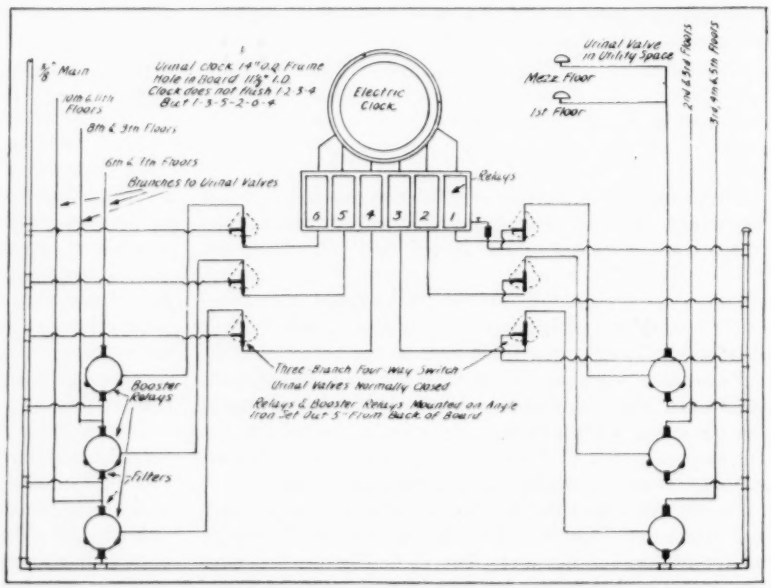
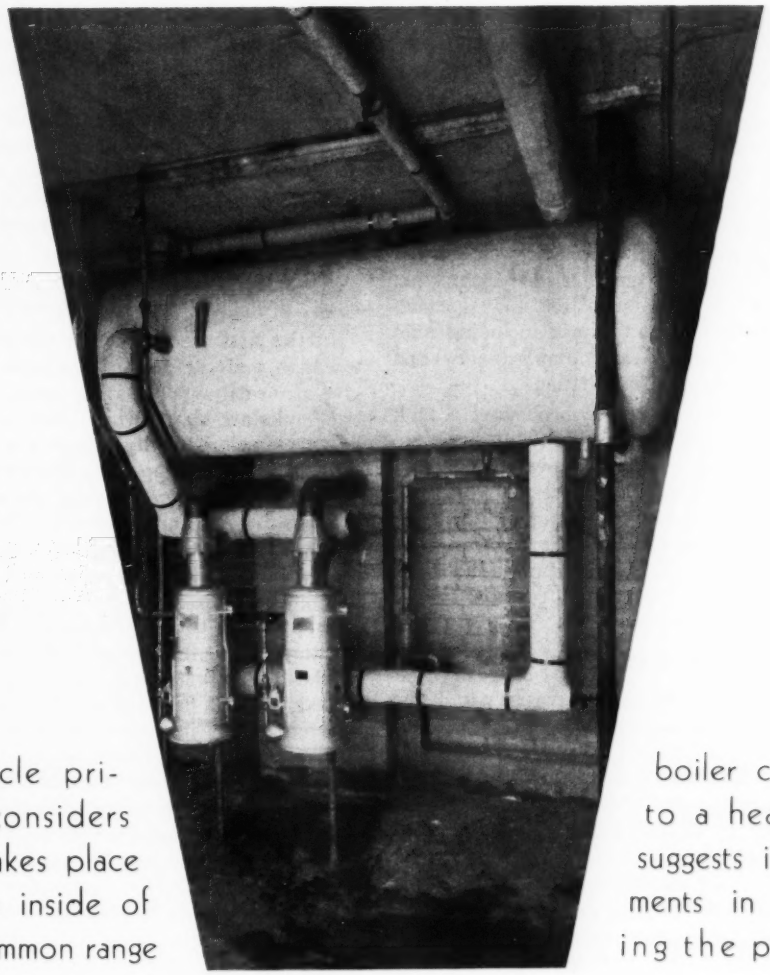


Fig. 1—The clock which flushes the battery of fixtures is installed on the gage board in the basement and has an electric movement

Fig. 2—Below is a diagram of the wiring used in flushing the batteries of urinals. The operation is timed over eight minute intervals and the design prevents overloading the soil lines





This article primarily considers what takes place on the inside of the common range boiler connected to a heater and suggests improvements in arranging the piping.

Automatic Control Applied to Range Boilers

ALBERT F. CRAVER

ONE big factor which is increasing the sale of automatic storage heaters is the fact that many new fields of natural gas are being developed and commercialized. The home owner now wants automatic control. In order to supply this cheaper gas, it has been necessary for the gas companies to make large expenditures from which must come early profits. They must reap this profit by increased sales and volume. Consequently, there is a very large field open to the plumbing contractor in converting range boilers into automatic heaters by equipping them with a temperature control, relief valve, draft hood, insulation cover, fittings, etc. It offers a load building factor to the gas company and a legitimate income to the merchandising and installing plumber.

The conversion of range boilers into automatic units is not as simple as it may seem. Improper installation and ignorance of existing facts and conditions can cause more harm than good. There are certain problems to be solved and existing conditions to be corrected. It is the writer's intention to point out in this article the principal difficulties, and offer suggestions based on practical experience and laboratory tests. Also, to show how these problems might be solved either by correcting the existing conditions or by adapting the boiler to meet the condition.

After a survey of heaters in domestic use, there was found to be four principal or basic types of installations that represented typical hook-ups of range boilers used in domestic hot water heating. See Figs. 1, 2, 3, and 4.

Assuming these four representative installations, it was necessary to accurately determine the conditions under which each would operate, before a thermostat could be installed which would control the temperature of the

water throughout the tank. The first problem was to determine the stratification of the water in the tanks and to find out, if any, the differences resulting from each installation.

Four 30 gallon standard range boilers were hooked up as illustrated. Holes were cut in the tank and temperatures ascertained by thermometers placed every 6 in. apart. An American Gas Association laboratory-approved double coil heater was used which had a rating of 25,000 Btu. per hour. This heater was allowed to operate for one hundred minutes on each tank. Readings were then made and tabulated. By keeping the same conditions throughout the test, including inlet water temperature, errors were minimized. Several check tests were made on each installation.

The equalization of heated water throughout a tank naturally depends upon the circulation that is set up within the tank. If this circulation is slowed up, stopped or misdirected, peculiar stratifications result which are characteristic of the individual installation. Each one of the four illustrated figures will show exactly the characteristic stratification of that particular hook-up. By a little investigation the undesirable features can be easily seen and discarded or improved.

DESIRABLE HOT WATER DEFINED

Before proceeding farther it will be necessary to define and assume what is desirable hot water and the limit of top water temperature that can be maintained safely. Statistics show that bathing or useful hot water is between 105 deg. and 110 deg. Fahr. Water for dish washing and for washing clothes does not have to exceed 130 deg. Fahr. Heavy precipitation of calcium and magnesium salts and the excessive liberation of free oxygen, which is an active agent to corrosion, appear when water temperatures exceed 160 deg. Fahr. For a margin of safety and for all average home uses it is unnecessary to maintain water over 150 deg. Fahr. We will, therefore, assume that top temperatures in the storage tank should not exceed 150 deg. Fahr. and will, therefore, limit the water to this temperature. All thermostats should be regulated to this temperature with a plus or minus 10 deg. adjustment. This one regulation will do more than anything else to lengthen the life of the tank and to maintain the initial efficiency of the heater.

At once we see that installations represented by Figs. 2 and 3 are very unsatisfactory, especially Fig. 3. These two installations will cause trouble no matter what kind of a heater is used, and where these types are converted to automatic control, there is generally one continuous complaint.

POOR CIRCULATION CAUSES HIGH TOP TEMPERATURE

In the first place, the top temperatures are entirely too high and the rest of the tank is not averaged to give a normal supply of hot water. The lives of these two tanks are short, while scale and rust deposits will be excessive. The city dumps are full of tanks which have been hooked up with piping in this manner and which show leaks only around the very top of the tank.

Type 3 is by far the worst. It is really surprising how many of this kind are still in service. However, they are becoming fewer every day, due to the fact that the new standard range boilers, if properly installed, are so tapped as to correct this fault. The excessive top temperature on this installation is due to the poor circulation of the heated water. As it leaves the coil heater, the heated water is first placed at the very top of the tank which stratifies in layers and does not tend to mix to any extent with the colder water. In other words, the hot water does not set the other water into circulation and only pushes the colder water below it lower. Since the water has to travel a greater distance from the bottom outlet of the tank through the coil and to the hot inlet, the circulation is slowed down to such an extent that the heat from the burner is imparted to a certain volume of water a longer time, thereby overheating it. Any boiler scale, rust or dirt will settle in the bottom of the cold water pipe and, collecting there, will tend to slow up the circulation still more. Note also the extreme high temperature of the water just as it leaves the coil upon entering the riser pipe. This high temperature will cause excessive precipitations of dissolved mineral salts,

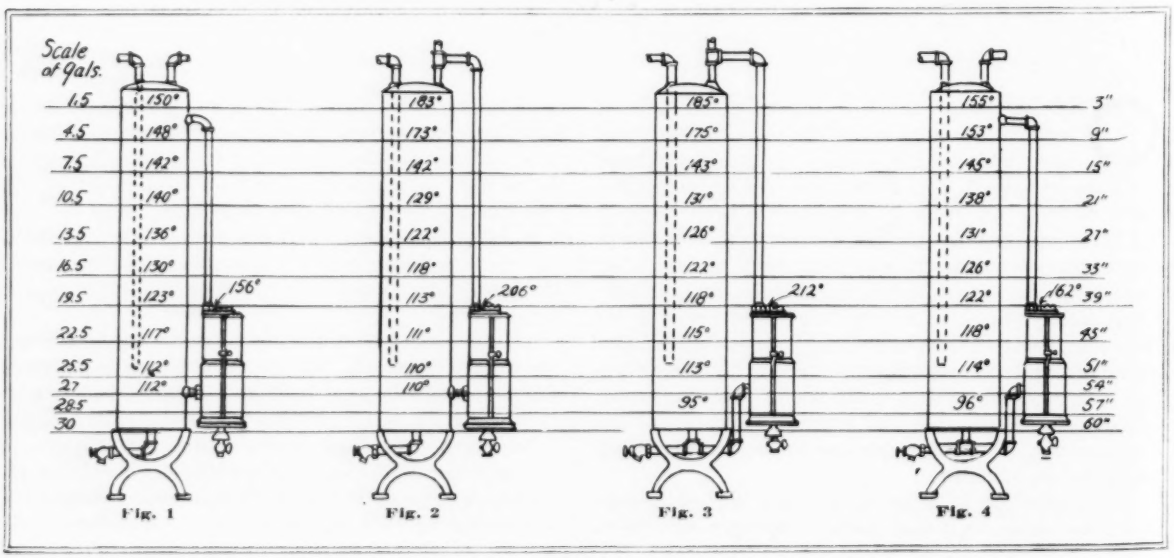


Fig. 1 Fig. 2 Fig. 3 Fig. 4

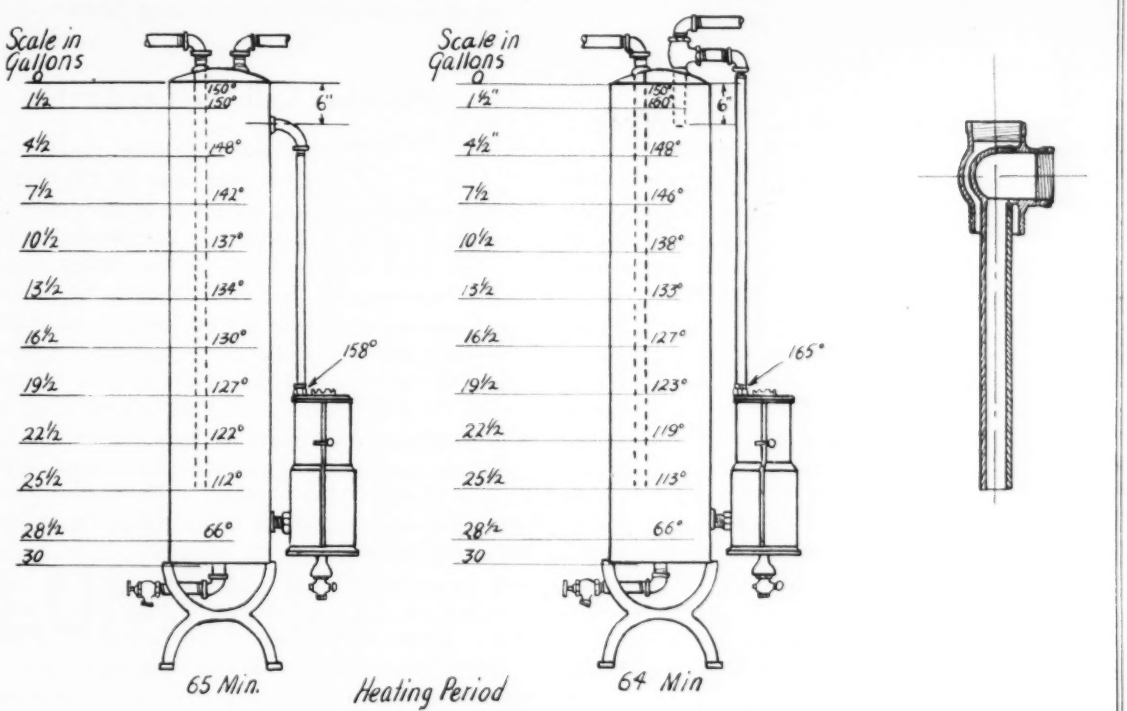


Fig. 5

which will, in turn, soon clog up the coils, reducing the efficiency of the heater and resulting finally in the burning out of the coils themselves. This high temperature also results in excessive radiation losses, which is a waste of heat.

If a thermostat is connected to this boiler it is almost impossible to accurately control the top temperature for any length of time. Short, quick draws on the thermostat will tend to create a temperature building condition at the top. Assuming that a thermostat did control the top temperature to 150 deg. Fahr., then the rest of the water in the tank would be so low as to be impractical, resulting in about one-third of the tank being available for useful hot water.

TWO METHODS FOR CORRECTING HOOK-UPS

There are two methods by which this hook-up may be corrected. The tank may be changed by drilling a hole 6 in. from the top of the boiler sheet and another hole 6 in. from the bottom of tank in line with the top hole. Connections are placed in these holes. The riser pipe is connected to the top hole and the bottom connection of the heater is connected to the other. If it is impossible to use the first method, a special fitting and tube may be used which is screwed into the top of the boiler at the hot water outlet. This special tee accomplishes practically the same purpose by discharging the hot water from the riser pipe into the boiler 6 in. below the top. See Fig. 5.

The installation shown in Fig. 2 is a little better than that shown in Fig. 3, since there is a direct connection of the cold water outlet to the coil heater. The use of a special fitting and tube on the hook-up shown in Fig. 2 makes a decided improvement. The type shown in Fig. 4 is an improvement over those shown in Figs. 2 and 3. However, this installation can still be bettered, as illustrated by Fig. 1. This represents the standard method of installation. It has proven itself the best of the four from a standpoint of efficiency, recovery, long tank life, easier installation, and general satisfaction to the user. Note that in this installation there is the best distribution of heated water, giving 27 gal. of usable hot water. Also, the temperature of the water around where the thermostat generally is located is fairly hot, making for easier control.

BUREAU OF STANDARDS RECOMMENDATIONS

Now that we have a good idea of just what the existing conditions are, we can adapt our automatic devices more easily and with better satisfaction. The standard 30-gal. range boiler standardized by the Bureau of Standards May 13, 1924, calls for a 60-in. tank with two 1-in. side tappings 6 in. from the top and bottom of the sheet, two 1-in. tappings in the head, 4 in. apart, and one ¾-in. tapping in the bottom. These boilers are made of standard gauge sheet to withstand 85 lb. of working pressure or of extra heavy sheet to withstand 150 lb. of working pressure. As the thermostat hole is not standard with this boiler, it is necessary for the plumber to put in this bushing by himself.

Through a series of tests it was found that the ideal location for the thermostat bushing is 18 in. from the bottom. The dip pipe should be at least 45 in. long and not more than 55 in., bringing it below the thermostat. The dip pipe should never be placed so that the

(Continued on Page 103)

Editorials

Good Dealers—How They Work

THERE may be a moral for manufacturers of plumbing and heating materials in the news released by one public utility under the headline: "Dealer co-operation shows phenomenal gains during 1931 in face of adverse conditions."

The release goes on to say that dealers had purchased nearly 62 per cent over the total for the previous year, averaging over $1,000 a day for the year, Sundays and holidays included. An even greater increase was shown in the amount of business sold by this company to people where the leads had been furnished by the dealers. Dealers sold $147,580.29 more in appliances during 1931 than in 1930, and the increase in sales made on leads furnished by dealers was $125,878.41, or 93 per cent.

Another item from the same company shows a record of two refrigerators per week for one dealer.

Of course, the utility carried on a supporting campaign. But these dealers showed that they knew how to make use of that campaign and of the various helps furnished. It carries us to the point that plumbing and heating manufacturers, while insisting that there are too few good merchandisers among plumbing and heating men, are overlooking the fact that there is very little of this type of co-operation for the man who sells bath tubs, boilers, and so on. In the few cases which can be cited, results have been satisfactory.

It isn't possible for one dealer, who is co-operating under such a plan as is in force in the case of the utility, to be undersold by another who, because he is carrying on no merchandising activities, can quote a lower price for any of the products offered.

There are good dealers in this field of ours. That has been amply proved. What they need is the kind of sales assistance, and the kind of mark-up practice that will protect the man who is willing to invest his own money in merchandising activities. Some one will do it—why not the manufacturer?

Competitive Selling

RESPONSE to the story we published two issues back, giving the details of how one plumbing and heating firm was meeting direct-to-you competition, was instantaneous. Letters come in asking all sorts of questions. And the firm whose practices we described has received letters from all over the country.

For that reason we followed the first story with two more of the "Plumbing and Heating Merchandising" section. Competitive selling is a live issue, and much that is practical and useful to the contractor will be found in this and the two preceding issues.

Another Call for Leadership

THAT very expensive magazine which goes by the name of "Fortune" has made a survey of living conditions in the United States which is not at all flattering to our national pride.

But more important is what the publication has to say concerning the building industry. "If the building industry could build a good house to sell at $4,800, it would add 60 per cent to its small-house sales in its present market among the richest third of the population. If the industry could build a good house to sell at $3,600, it would enter a virgin market and double its post-war residential output." And it goes on to say, most bitingly: "The members of the building industry are neither heartless nor fools. Their fault and the fault of their industry is historical. In management, in organization and in point of view, the building trades are still 19th Century trades. They have not yet applied the statistical and organized technique which other industries applied a generation ago."

After showing how important is that industry to the welfare of the country, the survey goes on: "Its failure, therefore, is the concern not of the building industry alone, but of all industry. The inefficiency and disorder of its management, the dependence upon speculative real-estate dealers . . . the costliness of its methods, the exorbitant rates of its financing, the obstructive tactics of its labor, the complications and stupidity of the building code and taxing laws which beset it—these are all matters of public and immediate interest."

What is, perhaps, more to the point, is the interest of organizations which see this rich field awaiting exploitation. Certain lumber dealers are merchandising under a plan which represents the dealer offering to the home owner a completed house. Back of it is a financial plan, with money to finance these homes.

The question which naturally arises is this: Who is eliminated under that plan? The man who installs the various services? Or the manufacturer who, working under those "19th Century" conditions described above, finds himself under the necessity of seeking a chance to get in on this lumber dealer plan?

There are powerful companies in the plumbing and heating field. They could furnish the leadership for the entire industry called for by the survey quoted. They know conditions, and have the capacity to organize on a basis that would bring 20th Century technique into a field that has nothing but profit to gain from such leadership. And it will only be a natural consequence that the industry which furnishes the leadership will reap a greater portion of the rewards. Upon whom will the mantle fall—leaders in the lumber field, or leaders in plumbing and heating?

PLUMBING & HEATING MERCHANDISING

This is another of our "shirt-sleeve," work-a-day merchandising sections, dealing with the methods required today, not only to sell plumbing and heating merchandise, but to secure the opportunity to present the quality message of the industry to the prospective buyer. Somewhere in the chain of circumstances that leads to the purchase of plumbing and heating goods, the contractor has to bring forcibly to the attention of those in his community that he can meet the mail order house and the direct-to-you house on its own ground—that every dollar of value these others can offer, he can match it,—and more, because he is permanently in business. Just what is being done in various parts of the country is illustrated by this latest section on

Competitive Merchandising

Portland Scores in

MASTER PLUMBERS have lowered prices on all nationally known merchandise.
CRANE, KOHLER or STANDARD
SINKS
as shown
$13.21
With swing spout facet $15.26
Other models at correspondingly low prices
The master plumbers association is now selling nationally advertised fixtures at less than the price of ordinary ones. For example, the attractive enamel roll rim kitchen sink shown in illustration is now offered at one-third less than shown two years ago. Modernize while prices are low but be sure to specify the best merchandise.
REPAIRING Of All Kinds
SPECIAL FOR 1 WEEK
Swing Spout Faucets
Replace your old kitchen faucets with a handsome, modern swing spout faucet for only $3.30
Reasonable Installation Costs
Following is listed Portland's finest Plumber's GOOD—They must be to be MASTER PLUMBERS!

PORTLAND MASTER PLUMBERS OFFER A
3-Piece Bathroom Set $45.83
This Week Only
"Don't buy a pig-in-a-poke," demand "CRANE," "KOHLER" or "STANDARD" fixtures. Then you will be certain of their quality, beauty and service ability. Be sure, too, to have them installed by one of the MASTER Plumbers listed below. He knows his business.
Consult your neighborhood MASTER PLUMBER He Can SAVE You Money
Following Is Listed Portland's Finest Plumbers
Good—They've Got to Be, to Be MASTER Plumbers

AN ADVERTISING campaign that "clicked" from the start has been sponsored by the master plumbers of Portland, Oregon, through co-operation with three selling organizations interested in promoting standard products. Realizing that a competitive market was evident, a meeting was held to discuss the situation, with the result that decision was reached to enter this market with reliable and nationally known lines of plumbing equipment. Now after almost a number of months of the advertising campaign those who have participated feel that it is the best business booster which they have ever undertaken as a group.

As one definite influence of the campaign within the Portland Master Plumbers Association it is pointed out that the association held meetings all last summer without the usual vacation interim. So interested were the members that they looked forward toward the regular sessions in order that they might discuss the advertising campaign and exchange experiences. This phase alone of a common bond of enthusiasm, and advancement proved almost as valuable as the actual returns on the advertising campaign itself.

The advertising copy has space two columns, seven inches and appeared consistently every Friday in the "Evening Journal." The advertising talk is tied around one or two specials of standard manufacture.

"These specials in themselves would bring little profit to the advertiser," explained T. A. Frewen of the Kendall Heating Co., who has been one of the prime movers in this campaign, "but they get the reader thinking about plumbing and direct his attention to the master plumber in his district. In nearly every case where one of these specials has been bought there has been other plumbing sold by the plumber making the installation."

As a means of stirring up interest in remodeling the campaign has proved most successful and satisfactory. It has given the home owner an idea that if he can get high grade fixtures at a price which is being asked for fixtures not so well guaranteed, this is his opportunity. And because the master plumber knows that he will have no comeback on these high grade fixtures it pays him to offer the specials.

"Install that new bathroom now—

Three advertisements in the Portland campaign, intended to stand in comparison with the efforts of direct-to-you houses

MASTER PLUMBERS Offer This Nationally Known
BATH TUB
At a New Low Price
$22.75
(with all fittings)
Do not confuse these tubs with the ones usually offered at this low price. Crane, Standard or Kohler represent the finest in plumbing fixtures, and this is the first time they have ever been offered at this sale price. You have your selection of any of these brands. Call or see the nearest plumber listed below.
Recessed TUBS
Perhaps your bathroom is adapted for a tub of this type. Exceptionally attractive and low priced with fittings.
$46.96
Guaranteed Repairing
Any job, small or large, will receive prompt attention.
Following is listed Portland's finest plumbers.
GOOD—they MUST be, to be MASTER PLUMBERS

Meeting Competition

replace the old insanitary fixtures with attractive new ones. Renew with new chromium plated trimmings that never tarnish. Get an estimate," is one set of suggestions.

"Replace your old kitchen faucets with a handsome, modern, swing spout faucet," is another bit of concrete advice.

Also with an eye on the winter season, one advertisement carried this paragraph:

"Now is the time to prepare your plumbing for winter to save freeze-up bills. Even that little faucet drip means big wear on your purse. A cover on your hot water tank will also save you money. Check your heating plant—a clean system is an economical one—and remember a master plumber will save you money on every job."

Offering merchandise that represents outstanding value—as the public has been accustomed to seeing it offered by outsiders

Special for this week
Master Plumbers Offer a
GAS WATER HEATER $6.30
This reliable heater, manufactured by a nationally-known concern, has never before been offered in Portland at such a low price. With a reputation for reliability and long life established through years of service in thousands of homes the country over, this heater brings you tremendous value for your money. Call on the nearest MASTER PLUMBER listed below; he will give you a remarkably low price on installation.
Tank Ball
Guaranteed for three years. Install this high grade ball and stop leaks, noises and other annoyances in your toilets. 97c
Range Boiler
30 gallon capacity. A durable, long-lasting boiler, offered at a new low price. $7.00
The following MASTER PLUMBERS have formed a unit to give you lower prices on appliances and repairing. Call the one nearest.
Albina Plumbing and Heating Co. GA 5456 710 Union Ave. N.
Beaumont Plumbing Shop GA 3133 1767 Fremont St.
Berry, Fred J. TA 4311 1343 Belmont St.
Behr, Jack M. TR 6061 836 Alberta St.
Burfitt, F. P. TR 4315 724 and Sandy
Burns, C. J. WA 7070 1116 Union Ave. N.
Chess, L. F. BR 3241 751 Washington St.
Christy & Radford WA 0043 98 East Killingsworth
Chronicler Plumbing Co. UN 1575 7041½ North Jersey St.
DeTemple Company BR 7641 823 Couch St.
Hawthorne Plumbing & Heating Co. TA 2727 13675½ Hawthorne Ave.
Kuntz, A. L. BR 3686 97 North 16th St.
McCoy, C. C. TR 1078 443 Union Ave. N.
Parker, W. Earl AT 2047 Multnomah Station
Rennie, R. D. TA 1972 1035 Hawthorne Ave.
Richmond Plumb'g & Heating Co. TA 5760 1100 Division St.
Widmer Plumbing & Heating Co. EA 3646 26 East 7th St. N.

Always call a
MASTER
Plumber
Is Your Plumbing READY FOR FALL?
NOW is the time to prepare your plumbing for winter and save freeze-up bills. Even that little faucet drip means big wear on your purse. A cover on your hot water tank will save you money. Check your heating plant, a clean system is an economical one—and remember, a MASTER plumber will save you money on every job.
BUY NEW FIXTURES NOW
MASTER plumber prices are lower. Install that new bathroom. Replace the old unsanitary and unattractive fixtures with modern ones. Renew with new chromium plated trimmings that never tarnish. Prices were never so low—GET AN ESTIMATE.
Following Is Listed Portland's Finest Plumbers
Good—They have to be, they are MASTER Plumbers
Albina Plumbing & Heating Co. GA 5456 710 Union Ave. N.
Beaumont Plumbing Shop GA 3133 1767 Fremont St.
Berry, Fred J. TA 4311 1343 Belmont St.
Behr, Jack M. TR 6061 836 Alberta St.
Burfitt, F. P. TR 4315 724 and Sandy
Burns, C. J. WA 7070 1116 Union Ave. N.
Chess, L. F. BR 3241 751 Washington St.
Christy & Radford WA 0043 98 East Killingsworth
Chronicler Plumbing Co. UN 1575 7041½ North Jersey St.
DeTemple Company BR 7641 823 Couch St.
Hawthorne Plumbing & Heating Co. TA 2727 13675½ Hawthorne Ave.
Kuntz, A. L. BR 3686 97 North 16th St.
McCoy, C. C. TR 1078 443 Union Ave. N.
Parker, W. Earl AT 2047 Multnomah Station
Rennie, R. D. TA 1972 1035 Hawthorne Ave.
Richmond Plumb'g & Heating Co. TA 5760 1100 Division St.
Widmer Plumbing & Heating Co. EA 3646 26 East 7th St. N.

MASTER PLUMBERS AGAIN OFFER
Outstanding VALUES
in Crane, Kohler or Standard
Toilet Combinations
at the remarkably low price of
$16
(with white seat $17.50)
Replace that old, unattractive and insanitary fixture with one of these. Master plumbers sell only the three leading brands of plumbing fixtures. It is your guarantee of quality and complete satisfaction and the price is less than you would pay for the ordinary kind. Call the nearest plumber listed below.
WE·FIX·IT
GUARANTEED REPAIRING
Every job, large or small, will receive prompt and efficient attention.
Listed below are Portland's Leading Plumbers:
Good—they must be, to be MASTER PLUMBERS
Albina Plumbing & Heating Co. GA 5456 710 Union Ave. N.
Beaumont Plumbing Shop GA 3133 1767 Fremont St.
Berry, Fred J. TA 4311 1343 Belmont St.
Behr, Jack M. TR 6061 836 Alberta St.
Burfitt, F. P. TR 4315 724 and Sandy
Burns, C. J. WA 7070 1116 Union Ave. N.
Chess, L. F. BR 3241 751 Washington St.
Christy & Radford WA 0043 98 East Killingsworth
Chronicler Plumbing Co. UN 1575 7041½ North Jersey St.
DeTemple Company BR 7641 823 Couch St.
Hawthorne Plumbing & Heating Co. TA 2727 13675½ Hawthorne Ave.
Kuntz, A. L. BR 3686 97 North 16th St.
McCoy, C. C. TR 1078 443 Union Ave. N.
Parker, W. Earl AT 2047 Multnomah Station
Rennie, R. D. TA 1972 1035 Hawthorne Ave.
Richmond Plumbing & Heating Co. TA 5760 1100 Division St.
Widmer Plumbing & Heating Co. EA 3646 26 East 7th St. N.

Each master plumber whose name appears on the advertising pays a nominal fee for this personal privilege although the entire association helps support and profits by the ads.

Mr. Frewen and John Aschenbrenner comprise the committee authorized by the master plumbers to execute the advertising plans. Each week after the general layout of the advertisement is made, the committee inserts any pertinent points that will particularly tie up with the special week.

RESULTS IMMEDIATE

The first eight issues of the advertising brought an average of 15 or 20 calls and inquiries, some resulting immediately in direct sales. The location of the plumber determines somewhat the direct results he gets. Some who are located in a general downtown district did not report as many direct calls as the suburban plumber. However, every one of the advertisers expressed himself as favorable to the advertising both for the benefit of the master plumbers as a whole and for the association.

One of the members in a suburban district who said he had not received any business directly traceable to the advertising was still strong for the campaign. He said that it would not surprise him if in six months from now some sales might result from the publicity.

Greatest sales were made in the vicinity of smaller homes, as such places often do not put in complete plumbing when they build and later are ready to add a water tank, laundry trays or similar extras. One master plumber in such a district reported that he made 25 per cent sales of other plumbing where he installed the weekly "special."

When the campaign was first planned it was only authorized for three months but long before the end of that period it was decided to continue three months longer.

So interesting and important has the campaign become that inquiries have come from the east regarding results and it is anticipated that the idea will be adopted in many cities and towns because of the satisfaction derived from those sponsoring it in Portland.

That this is true is shown by recent issues of DOMESTIC ENGINEERING, in which we have called attention to the efforts of various plumbing and heating contractors to meet competitive merchandising with the same methods. To the Portland group probably goes credit for being among the very earliest of those who recognized the need to fight vigorously with modern merchandising weapons.

The Portland association as a distinct organization of the plumbing industry reserves preferred space in the classified section of the local telephone director. This is in addition to and apart from the regular classified listing of the plumbing industry, and heads the classified plumbing list.

The national association emblem appears, with this wording: "This emblem stands for better plumbing. Members of this association are best qualified to give you satisfactory and adequate service. When in need of a plumber use the list below to select from." This is followed by a listing of the members.

At the right we show how the local newspaper has co-operated with the Portland masters. Publicity of this kind is, of course, of the greatest value, and this particular item gives a rather thorough survey of the services and the products offered by the master plumber.

It speaks of remodeling, of shower baths, of color, of the double drain board sink with strainer, of faucets, piping, hot water supply.

But the main interest in this story is, of course, the aggressive and thoughtful efforts being put forth by the Portland group to combat competitive selling from outside the industry. Like the other efforts we have described in these columns, it has been worthwhile because it is in line with modern tendencies. People must today be given the opportunity to compare price and quality.

Shower Bath Feature for Modern Use

Installation of modern plumbing fixtures and overhead of the main system as a means of increasing home efficiency is one of the items of modernization attracting attention of the shrewd homeowner.

Replacement of obsolete bathroom fixtures with those of new and modern design has been found to be an advantage, not only in providing for increased comfort and convenience for the family, but as a means of conserving capital invested in the home. Through judicious expenditure wornout equipment can be replaced with resulting elimination of noisy operation.

One of the prime conveniences in plumbing fixtures is the shower bath. This form of bathing has increased in popularity in recent years, and can be included in the home bathroom equipment at a nominal cost and without undue confusion in installation. The practice is to install showers in conjunction with tubs, using the tub as the drain. The main water leads to the bath tub can be used for the shower simply by extending the pipes to the desired level.

Use of color in vitreous plumbing fixtures has done much toward increasing the demand for new equipment. The range of color is wide enough to fit in with any general color scheme used in the house.

Another development of interest to the housewife is the double sink which can be used for dishwashing and eliminates the necessity of handling dish pans. Dish washing equipment can also be easily installed.

Overhaul of the plumbing system of the house is also a necessary task, and one that if carried on in time will prevent costly outlay for an entire new system. Valves and faucets should be checked and washers replaced where signs of leakage occur. This will result not only in saving on the water bill, but also in eliminating the irritating noise of dripping water. Joints of pipes should be inspected for signs of leakage.

Many owners have found it advantageous to use flexible copper piping for making extensions of water and drain lines where required. Through use of this type of piping the necessity of tearing out plaster work has been eliminated in many cases.

The hot water tank should also come in for its inspection. These tanks are like all machinery, and is liable to failure through deterioration. It should be gone over for signs of leakage around the rivets and seams and pipe connections and if evidence of weakness is found its replacement will prevent flooding of the basement, or whatever compartment it occupies. Installation of a drain at the bottom of the tank will not only provide a means of getting water, but also for permitting the sediment collecting in the bottom of the tank to drain off. This will insure more efficient circulation of water.

Installation of cut-offs for pipe lines going outside the house, or those in exposed walls is also beneficial in preventing damage from freezing. Insulation of pipe lines that are exposed or in walls on the east side of the house will also prevent freezing damage.

This long newspaper story indicates the manner in which the newspaper carrying the association advertising backed it up

Meet Mail Order Merchandising On Its Own Ground

SOME time back there appeared in one of the newspapers of Collinsville, Ill., a full page advertisement. This copy is reproduced on the next page and it shows what local dealers did to meet the competition of the mail order house. One local plumbing firm—Collinsville Plumbing & Heating Co., figured for two of the houses, and Christ Schualat, another Collinsville master plumber, figured the third.

"At present," wrote Walter F. Fischer of the Collinsville Plumbing & Heating Co., recently, "price is the greatest argument."

There is no question of this fact, of course, and the plumbing and heating contractor must find ways and means of meeting the price argument with the quality argument—and at the same time by vigorous action to let his community know that, quality for quality, he can match the price of any of the mail order houses.

In addition to this, the local contractor has the arguments advanced at the bottom of this full page advertisement. The labor used in local building is local labor which, as the advertisement says, helps build up the community. The other argument is even stronger—the customer deals with a man known in the community, a man who will continue to do business there and can always be called upon for service—and who must stand back of his work if he is to have any success at all.

This is a new note in competitive merchandising and we reproduce the advertisement because we think that anything that has been done, or is being done, to enable the plumbing and heating dealer to understand modern competitive selling will be of value to him. He must meet the arguments of those with whom he is competing and we believe that he can meet it both on the basis of price and, more particularly, on the basis of price and quality.

This was a full page advertisement, as described on the preceding page. It gave the people of the community a chance to compare the prices at the time of publication. Those prices would, of course, be at a different level now—but the essential point made in the advertisement, the difference in price in favor of local contractors, would remain

If you are thinking of building here are facts you ought to know

¶ Collinsville Contractors will build a house for you 15% to 20% cheaper than any mail order house.

¶ Collinsville Lumber Dealers will sell you SPA grade marked lumber and standard building material as cheap or cheaper than any dealers anywhere.

¶ Collinsville Building and Loan Associations will help you finance your home at lower rates than any mail order house, for whatever number of years you desire.

Compare these figures on costs of three specific buildings as listed in (————————) catalogue:

(Mail Order*) written estimate -	$6,128.35
Local contractors guaranteed price -	5,271.00
Saving to you by local contractor -	857.35
(Mail Order*) written estimate -	$5,795.00
Local contractors guaranteed price -	4,697.00
Saving to you by local contractor -	1,098.90
(Mail Order*) written estimate -	$4,258.78
Local contractors guaranteed price -	3,505.00
Saving to you by local contractor -	753.78

REMEMBER THIS: When you have a local contractor build your home you not only save money—15 to 20%—but you keep the labor at home, which helps to build up the community. And, equally important, you deal with a man whom you know, who lives in your own city, who is personally responsible and whose reputation in the community is your assurance of a square deal and a well built home.

For further information inquire of the Associated Builders, the building material dealers or any of the Building and Loan Associations of Collinsville

* The name of the mail order house was published in the original ad.

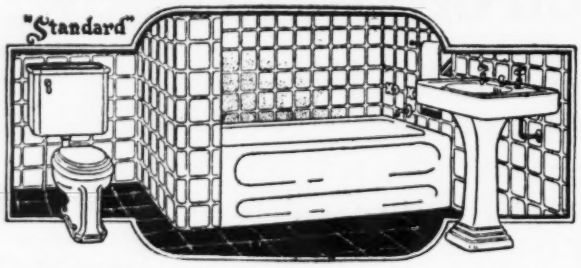
Spend for the Home in 1932. Buy Plumbing Fixtures and Heating Equipment, Complete and Installed

The Key to Economy

"Standard" PLUMBING FIXTURES

Bathroom Ensemble $80.00

with all trimmings above the floor, Less Installation



MODERNUS TOILET With Church White Regal Seat

PEMBROKE 5 ft. x 30 in. Built in Bath Tub

LATON 20 in. x 24 in. Lavatory

BUY PLUMBING AND HEATING FIXTURES WHERE QUALITY, VARIETY AND COURTESY ARE ALWAYS AT YOUR COMMAND

Every plumber knows and every buyer of plumbing and heating material should know that the **PHILLIPS LEAD AND SUPPLY COMPANY** realize the importance of keeping pace with current day's improvements in the plumbing industry. Their show room is stocked with the newest of "Standard" plumbing fixtures for your selection, and their salesmen exert their utmost efforts to see that you are thoroughly satisfied with every detail of your purchase.

If you have set aside a sum to spend on your plumbing and heating equipment, let us show you how much of it you can save by coming here and finding just what you want in **guaranteed** fixtures, in many cases at less than you expect to pay.

OUR DEFERRED TIME PAYMENT PLAN
is arranged so that to purchase this ensemble INCLUDING INSTALLATION will not require a large cash outlay, and we invite you to feel free to call or write for all details

Free Ample Parking Space on our own private property at all times for the convenience of our customers and their clients.

Our co-operation is extended to and through thoroughly, reliable and experienced licensed master plumbers, which is your guarantee for a safe and proper installation of plumbing fixtures.

AUTHORIZED DISTRIBUTORS OF

"Standard" PLUMBING FIXTURES

PHILLIPS LEAD and SUPPLY CO.

WHOLESALERS OF

PLUMBING AND HEATING SUPPLIES

231 South Main Street, Providence, R. I.

ESTABLISHED 1836 PHONE DEXTER 8600

Wholesaler and Dealers

ORDINARILY this section is given over only to the efforts of plumbing and heating retailers to merchandise the products of the industry. But because of the importance of the competitive angle today, the following material concerns a co-operative effort between a wholesaler and the contractors of his city.

The two advertisements reproduced show the kind of copy that is going to the public of Providence, R. I., sponsored by Phillips Lead and Supply Co., 231 South Main street. Here again is the story of quality at reasonable prices—the only kind of copy which can be depended upon to checkmate direct-to-you copy. Notice the line in each advertisement: "Our co-operation is extended to and through licensed plumbers."

Herbert D. Nickerson, treasurer of the company, writes as follows:

"While we have been advertising in the Providence Sunday Journal home builders' section for some years, it is only within the last few months that we have placed any prices in our advertisements. Our reason for this is that today the public is 'price minded,' and it is our opinion that our advertising story is not half put over to the public unless it gives a price. To conclusively prove this point, we have had more inquiries and more favorable comments on our sales plan than ever before. We have even had favorable comment from our customers, the master plumber, he knowing that when we do effect the sale to the property owner a commission is reserved for the installing plumber.

"We are inclosing herewith a proof copy of an advertisement that will appear in the Providence Sunday Journal, February 27, 1932. After the issue of each advertisement, we have some 500 to 1,000 reprints struck off which we send out to our plumbing customers that they may know what we are doing. We also have a bulletin board in our store where we always display our latest advertisement.

"In our opinion, if the better class of whole-

This advertisement, two columns wide and eleven inches high, carries the message of quality and reasonable prices—and reviews the sales arguments in favor of local purchases

Sell Economy and Quality

salers in this country, meaning those who maintain a showroom, would get in back of the advertising plan, we think the effect against the direct-to-you houses would do an immense amount of good."

The main idea back of each advertisement is to feature some one product, and to give that product a strong presentation. Other things always stressed are "sold on convenient terms" and "free ample parking space on our own private property." The advertisements are two columns in width and about eleven inches high, which is sufficiently large to assure attention in a newspaper page.

The company maintains a beautiful display of up-to-date fixtures, to which the contractor is, of course, free to bring or send his own customer. Not infrequently it has been the experience that where a customer had decided to buy direct-to-you merchandise and the contractor has brought or sent him into the display room, it has been possible to sell a better job at a better price.

As noted in the advertisements, the Phillips Lead and Supply Co. will handle the financing of any sales to customers deserving of the credit. Under its plan, the contractor gets his money out of the job as soon as the work has been completed, and he has no responsibility for the payments of the customer, and the contract is made to cover not only the cost of the fixtures, but of the installation. Naturally, no payment is made to the contractor until the job has been accepted as satisfactory.

In case a person enters the display room, the salesman on duty makes every effort to sell the needs of the prospect. The prospect is asked if the sale is made, to indicate his plumber and if he is one of those co-operating with the house—or is in good credit standing—the customer's preference is, of course, respected. If the prospect has no plumber preference, the job is given to a contractor—who is a customer of the whole-

Another advertisement in the series which is helping to interest Providence people in doing their buying at home, where values are as good as may be had elsewhere

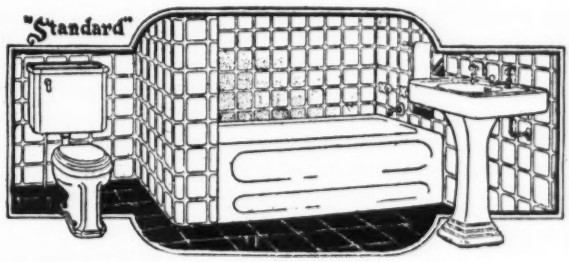
Spend for the Home in 1932. Buy Plumbing Fixtures and Heating Equipment, Complete and Installed

The Key to Economy

"Standard" PLUMBING FIXTURES

Bathroom Ensemble $80.00

with all trimmings above the floor, Less Installation



MODERNUS TOILET With Church White Regal Seat

PEMBROKE 5 ft. x 30 in. Built in Bath Tub

LATON 20 in x 24 in. Lavatory

GOOD PLUMBING FIXTURES

Are not a matter of money when purchased at the **Phillips Lead and Supply Co.** Dependability does not mean high prices. You can buy a Built in Bath Room ensemble from $80 up to $2000, and if it is "Standard" and is purchased from our show rooms, it is right no matter how little or much you pay.

Every fixture sold in this display room has the "Standard" Sanitary Manufacturing Company's idea of quality built into it and carries a three way guarantee of the **PHILLIPS LEAD AND SUPPLY CO., MANUFACTURERS, and PLUMBER.**

OUR DEFERRED TIME PAYMENT PLAN
Is arranged so that to purchase this ensemble INCLUDING INSTALLATION will not require a large cash outlay, and we invite you to feel free to call or write for all details

Free Ample Parking Space on our own private property at all times for the convenience of our customers and their clients.

Our co-operation is extended to and through thoroughly, reliable and experienced licensed master plumbers, which is your guarantee for a safe and proper installation of plumbing fixtures.

AUTHORIZED DISTRIBUTORS OF
"Standard" PLUMBING FIXTURES

PHILLIPS LEAD and SUPPLY CO.

WHOLESALERS OF
PLUMBING AND HEATING SUPPLIES
231 South Main Street, Providence, R. I.

ESTABLISHED 1836 PHONE DEXTER 8600

sale house—nearest to the home of the propect.

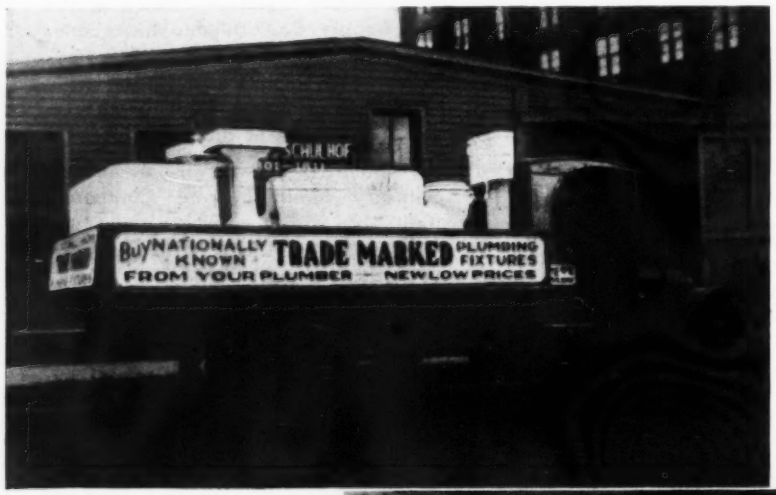
As would be true in any large city, the private parking area which the company can offer to those visiting its display room—whether home owner or contractor—is an appreciable factor. A busy contractor will be glad to know that he will not have to waste any time seeking for a place to park his car—and the same holds true of the customer, of course.

The important thing about all this is the co-operative effort of two branches of the industry in Providence to carry the competitive fight to the public and to seek an opportunity to prove to the customer that the plumbing and heating industry has products to offer in every price class, with the additional security of local purchase, on the strength of the recommendations of local business men.

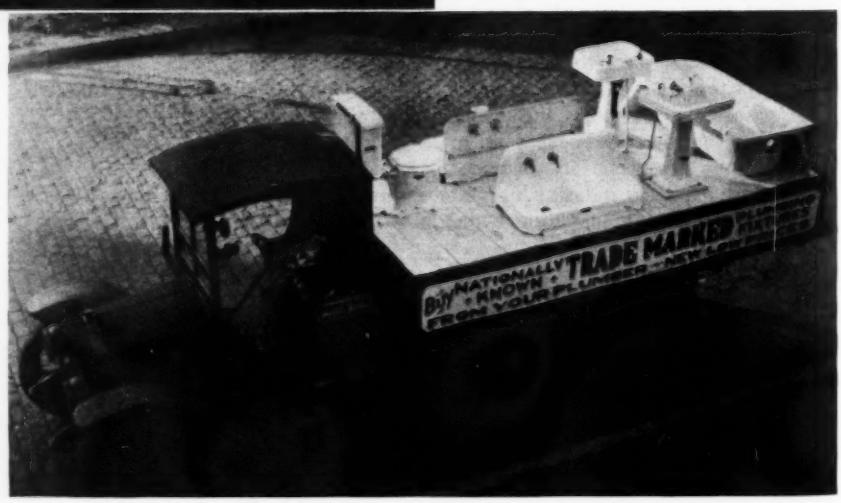
Opinions may, and do, differ as to the wholesaler showroom. But this is one of those situations where no general rule can safely be laid down. In Providence, between the Phillips Lead and Supply Co. and its contractor customers there is an obviously advantageous co-operative effort going on. It is, in that city, keeping plumbing and heating where it belongs in the eyes of the public by meeting outside competition on its own ground. It is saving the profits on plumbing and heating installations for men in this industry and helping create employment for its mechanics. And those are valuable advantages not lightly to be cast aside where such co-operation is possible.

We call attention to one further point in connection with the advertising the Phillips company is doing. Note the "Spend for the Home in 1932" slogan appearing at the top of the copy reproduced. This wholesale firm was alert to the value of the movement, and in that connection Mr. Nickerson says: "We recently wrote you for 1,000 of your slogan posters, 'Spend for the Home in 1932.' These we have posted in conspicuous places throughout the store. We gave each salesman a quantity of these and requested that he see that they are given a public place in the windows of the plumber."

Truck Carries Quality Message to Chicagoans



Looking down from an upper window this is the way the display truck looked. From whatever angle it was seen, the selling message was easily read and the idea was so unique that the truck was not likely to be forgotten quickly by those who saw it



Pincus & Schulhof, wholesalers in Chicago, fitted up this display on a truck in order to take the message of nationally known plumbing to the citizens of Chicago. It attracted attention wherever it went, and it went everywhere in the area served

Have You Joined In This Successful Campaign?

SEVENTY-FIVE thousand stickers and three thousand of the posters in the "Spend for the Home in 1932" campaign have already been absorbed by the plumbing and heating industry—and we've only just begun to get the movement rolling along. In our next issue we hope to make a complete report of all phases of the movement.

For this issue it is sufficient to say that orders continue to pour in for the stickers, posters and electrotypes, and that all over the country the campaign is being taken up. A review of what is being done with the campaign will show dealers, contractors, building men, business papers, newspapers and house organs of manufacturers and wholesalers actively pushing the movement.

Comments on the movement are uniformly enthusiastic, and willingness on the part of those who have publications to give space to the idea shows its popular pulling power.

The campaign represents the first opportunity the building industry as a whole has had to get back of an idea on which everybody could agree. Requiring no central organization, it has been possible for each branch which has taken it up to do with it what seemed best in that field. Each of the business papers involved has been able to go ahead on its own, presenting the idea in the manner it saw fit with no reference to what others might be doing. This has, of course, aided immensely the acceptance of the plan by these papers, and by their readers.

The question for the plumbing and heating contractor —and wholesaler—is how best to use the "Spend for the Home in 1932" campaign to his advantage. At the bottom of the right column we list the materials we offer which bear the slogan. In addition to this, a reference to the two pages in each issue of DOMESTIC ENGINEERING, known as "Retail Advertising Service" will give the reader newspaper copy, sales letters and publicity items built around this idea of spending for the home this year.

The poster—which is printed on stiff board paper—should be displayed in the window, and at various points in the store. It should be placed in the side rear windows of passenger cars, and in the windows of trucks. The sticker should be on every letter or bill or statement sent out, and the electrotype, carrying the slogan "Spend for the Home in 1932," and the additional message: "Buy Plumbing and Heating" should be used in newspaper advertising. The words of the slogan themselves can be used in every sales letter and in every newspaper advertisement, even though the slogan cut is not shown.

The plumbing and heating industry, as part of the building industry, is facing stiff competition this year from other industries. We can not hope to get even a fair share of the public's available funds if we do not do something aggressively, in order to attract attention to the soundness and saneness of spending for the home. No opportunity to put this thought before the community should be missed by plumbing and heating contractors and wholesalers—as those who are alert to the need for vigorous action are already doing.

To fail now in doing a good selling job is to fail doubly. First, no business for the present will be drummed up—and second, when business is picking up, the man who has dropped out of sight completely now will find that he has a big handicap to make up. Get back of the "Spend for the Home in 1932" campaign now. Push it strongly in your community—and reap the benefits in the form of profitable sales.

Other branches of the building and home furnishings industries are actively supporting this campaign. Plumbing and heating contractors will want to be identified with it as strongly as any of the other dealers in their communities who may be using posters, stickers, etc., from their own business papers. The movement is gaining momentum.

Here is the material offered for the use of contractor, wholesaler and manufacturer in the "Spend for the Home in 1932" campaign:

POSTERS

10 cards	$ .50
25 cards	.75
50 cards	1.25
100 cards	2.00
500 cards	9.00
1000 cards	17.00

STICKERS

1000	$ 1.50
2000	2.50
5000	5.00

ELECTROTYPES

1½ x 2½ in.	$ .35
3 x 5½ in.	.55

Please include cash with order. Prompt shipment will be made.

Fig. 1—This shows what was accomplished in remodeling a kitchen. It is interesting to note that the plumbing contractor also furnished the metal covering for the table at the left

A Model Plumbing Installation for a Tea Room

By HARRY DAVIDSON

TEA ROOMS have multiplied in recent years. And whenever one of them comes into being there is presented to the plumber a new opportunity for business.

Often the tea room originates in a private home, perhaps as a means of help in a financial emergency.

We have seen these tea rooms grow from very moderate proportions into sizeable business propositions. Often it is not at the outset that the opportunity presents itself to the plumber. We think it is more likely to appear as the venture develops and secures a large circle of customers.

That is what happened in the case of a tea room that recently came to our attention. There was no opportunity for anything in the plumbing line until after the venture had proved that it had a promising future—then they were ready to spend some money in putting the place into proper shape.

An alert plumbing contractor had looked ahead to the time when the matter of plumbing requirements would naturally present itself, had interested himself with the proprietress

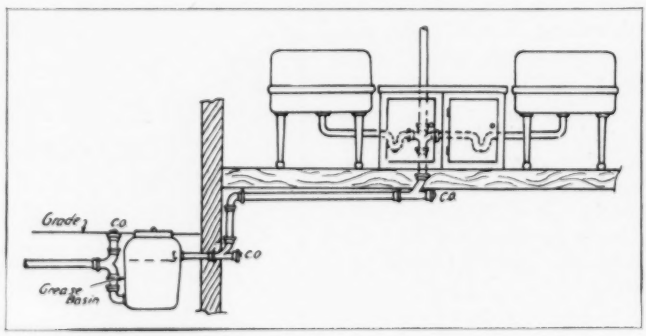


Fig. 2—Here is an elevation giving the principal features of the connections between the kitchen sink and the grease basin

from time to time, occasionally patronized the tea room and in due course the remodeling work was his, and not as a contract, but as a day-work job.

He was a dealer in all the associated lines—hence not only the plumbing, but the gas range and the refrigerator work came his way.

NEAT, ATTRACTIVE KITCHEN

Fig. 1 shows what was accomplished in the kitchen, or at least a part of it, for a second sink and the refrigerator are not included in this picture.

Seldom have we seen a neater, or more attractive kitchen.

The table shown in the foreground is covered with metal, and this by the way, was furnished by the plumbing contractor.

Inspection of the kitchen by guests became a part of the tea room's publicity and a look into the kitchen is a forerunner of the excellent meals that are served.

The second kitchen sink is at the left, at the other end of the closets. The two sinks discharge to a grease trap, which was also a part of the equipment supplied by the plumber. The kitchen was also provided with a floor drain. We are not favorable, however, to such use of floor drains. Because of infrequent use, the seal of such a drain may be lost through evaporation.

In Fig. 2 we show an elevation giving the principal features of the connections between the kitchen sinks and the catch basin.

The two traps are concealed in the closets, in order to provide working space under the sinks.

For the particular waste connections here shown, it is claimed that the stack, which extends through the roof, acts as a local vent for the grease trap. This result has been attained in this instance by discharging the sinks above the water line of the grease trap.

In our opinion, a better method is to dip the discharge line down into the catch basin so that incoming waste enters without disturbing the grease which accumulates at the top of the catch basin. In other words, the gaining of whatever advantage may come from local venting, is at the expense of the most effective operation of this type of trap. No doubt there will be a difference of opinion regarding this matter, but our idea is that discharging into the catch basin as in Fig. 2 is not the best plan.

Directly below the kitchen is the laundry, Fig. 3, with ample equipment for the requirements of the tea room business. It will be noted that all supply pipes are covered, to prevent dripping of condensate.

Condensation occurs when the temperature of the pipe is lower than the dew point of the surrounding air. Dew point is the temperature at which the air would be saturated by the moisture actually in it. It is understood that as the temperature of air is raised above the dew point the capacity of the air to hold water is increased. When the temperature is lowered below the dew point, or the saturation point, the air becomes incapable of holding all of the vaporized water which it contains and a very definite part of it is condensed to form a liquid. This liquid appears on the surface of the cold pipe as condensate or sweat. The idea in back of covering cold water pipes is to prevent the moist air from coming in contact with the cold surface. The surface of the insulation, of course, approximates the temperature of the surrounding air.

The vents for the two sets of laundry tubs are carried up to a point above the ceiling, where they carry horizontally to a nearby vent stack. In Fig. 3 it will be seen that where the vent turns back into the wall, a cleanout has been supplied for each set of tubs.

OTHER PLUMBING REQUIREMENTS

Sometimes these tea room jobs amount to more than supplying plumbing requirements for kitchen and laundry. Some sort of toilet room facilities for both men and women will often enter into the requirements of the tea room business, although it does not happen to be a requirement in this particular instance.

Sufficient to say, the tea room is just one more modern enterprise which may be included by the plumbing trade in their catalog of business possibilities.

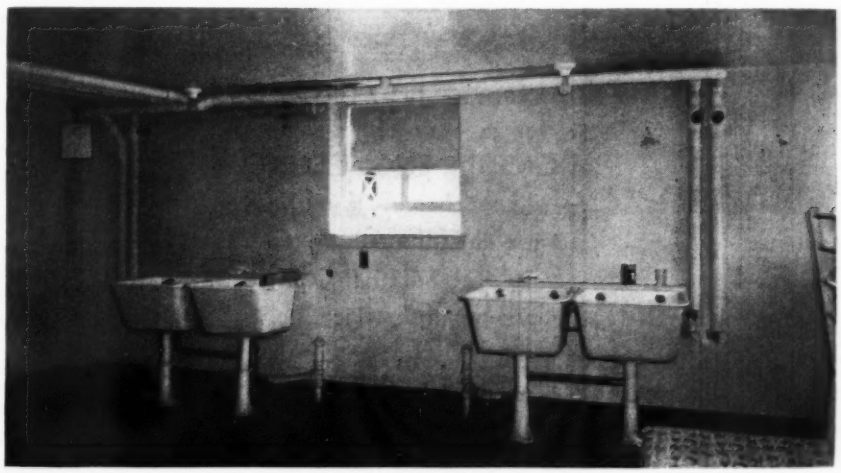


Fig. 3—The laundry equipment is shown here. Note that all supply pipes are covered to prevent the formation of condensate. Also note that where the vent turns back into the wall, a cleanout has been provided for each set of tubs

RETAIL ADVERTISING SERVICE

IT is generally conceded that the building industry can help lead us to better times. For the present the idea of remodeling must be pushed strongly—and in connection with the "Spend for the Home in 1932" campaign, we have a fresh note to inject into remodeling copy. Use the material on these two pages.

Make the Home Beautiful and Convenient

LET the essential home services—the plumbing in bathroom and kitchen—be beautiful as well as convenient. Many an otherwise charming home lacks the modern note of design and color now available in plumbing fixtures. Young people, centering social life more than ever on the home, want to be proud of every room—and the cost will be less than the added value gained by bringing plumbing up to date. Just telephone. We'll be glad to give you the benefit of our experience in modernizing.

(In this space Your Name, Etc.)

For one-column space

Home . . . Now the Important Social Center

Most of us have "come home," in the sense that we are doing more of our social living in the home, due to one reason and another. And that brings the essential home services—such as plumbing in bathroom and kitchen—into greater prominence. We do not want those rooms to compare unfavorably with the other rooms in the home, particularly with the beauty of color and design now available in plumbing fixtures. You will want to know something about the remodeling work we have done in other homes. Just telephone.

(In this space Your Name, Etc.)

A two-column newspaper ad

Dear Madam:

Don't you find that your family is spending more time at home these days--that you are entertaining more than was the case a year or two ago?

With this in mind, it is true, too, that we are all looking a bit critically over the home furnishings. We do not want any of our rooms to compare unfavorably with the others.

Particularly is this true with the essential services-- the plumbing in kitchen and bathroom. With the beauty of color and design now available in plumbing fixtures, these two important rooms can be made as charming in their way as any of the other rooms.

Plumbing fixtures last so long that we have a tendency to forget that, coming from a daintily furnished bedroom into an out-of-date bathroom, with no color in it, is apt to arouse an unfavorable comparison.

We have done a number of very interesting remodeling jobs and would like very much to tell you about some of them, and to consult with you on any changes advisable in your own plumbing arrangements. There will be no obligation on your part. Just telephone and a member of the firm will call on you at your convenience.

Very truly yours,
HARRY BROWN

A plumbing sales letter

The copy on these two pages is for the use of readers of DOMESTIC ENGINEERING—without charge. If you wish to use the illustrations, they are sold at $4.20 for twelve—three months' service.

If you are using any of this copy, send us samples. We like to keep in touch with what our readers are doing.

IT'S TRUE!—THERE *IS* NO PLACE LIKE HOME

"That's a discovery which may be chalked up to the credit of present conditions," says Harry Brown, local plumbing contractor. "We've all of us discovered that instead of being a place to go to when "there's no place left"—as we were saying a couple of years ago, it's a pretty good place to be under any conditions.

"Young folks, and older folks alike, have made the discovery, and a salutary one it has been. It means a revival in interest in that institution which has always been the backbone of the nation. That's why we're urging that folks 'Spend for the Home in 1932.' We can't think of a better or safer investment than that which goes to bringing greater beauty and comfort to the home. And that goes for everything—not only my plumbing service."

Hand this publicity item to your newspaper

PEOPLE these days are conscious of economy—it's in the air—we're all talking about it. That's why the heating copy on this page has been pitched on the economy key. It will bring results. Use it—with or without the illustration.

A two-column newspaper ad

Save Money . . . and Be Comfortable

Did you ever stop to think that, when you're uncomfortable at home because it's either too warm or too hot in the house, you're losing money? In either case, fuel is going to waste. If you can't keep your home at a constant, comfortable heat level, you're burning fuel that isn't giving value received. Let us look over your heating plant and bring it up to date. Then you'll be comfortable, and your fuel bills will be smaller—no matter what fuel you burn. Just telephone.

(In this space Your Name, Etc.)

Heating Comfort Is Heating Economy

AND that's a fact! Because if you have heating comfort—if you have a constant, level temperature in the house—you're getting value for every dollar you put into fuel. No matter what fuel you use, if you suffer from great fluctuations in temperature, you're losing money. Cut down your fuel bill by modernizing your heating plant. We'll show you how to get controlled heat and comfort—and the small cost will pay big dividends in fuel savings. Just telephone. We'll send a competent man to advise you.

(In this space Your Name, Etc.)

A single column ad

BUDGET YOUR FUEL COSTS AND FOLLOW THE BUDGET

"Many people can't budget fuel costs, because they vary so greatly," says Harry Brown, local heating contractor. "And when there's great variation in the fuel bills there's great variation in the efficiency with which the fuel is being burned.

"Also there's probably great variation in heating comfort—now too warm, now too cold—and some one's always dashing down into the basement to do things to the heating plant. Not, of course, where there's a modern plant, giving controlled warmth. In such homes there's no variation in the temperature—or very little—and less variation in fuel bills, which are definitely smaller."

Give this publicity item to your local newspapers

Your Window

Window displays need change. If you have a permanent display of fixtures and equipment, make changes in lighting—use the free floor space for changed displays of accessories. Property owners who pass your window will never be particularly drawn to it if it remains the same in every detail for months at a time. Change—even small changes—is what draws attention to a window.

Dear Sir:

As you audit the monthly bills for your home, does it ever strike you that you may be paying too much for fuel?

No matter what fuel you are burning, if your heating plant does not handle it efficiently, you're losing money. Watch some evening how temperature varies in your home. If that variation is great, then you have a heating plant that is going about its job "on its own"--uncontrolled, and shoving heat out the chimney, probably, faster than into the rooms of your house.

A modern heating plant doesn't permit great variations in temperature, and consequently doesn't waste fuel. It makes up for the difference between inside and outside temperatures, so that you have it always at a comfortable warmth in your rooms.

We've modernized a great many heating plants in this community, and would be glad to give you the details as to fuel savings, greater comfort, etc. It will entail no obligation--we'll send a competent man to advise you on your heating problems. If we can save you money on fuel, we'll tell you just how.

Telephone--we'll meet your convenience.

Very truly yours,
HARRY BROWN

A heating sales letter

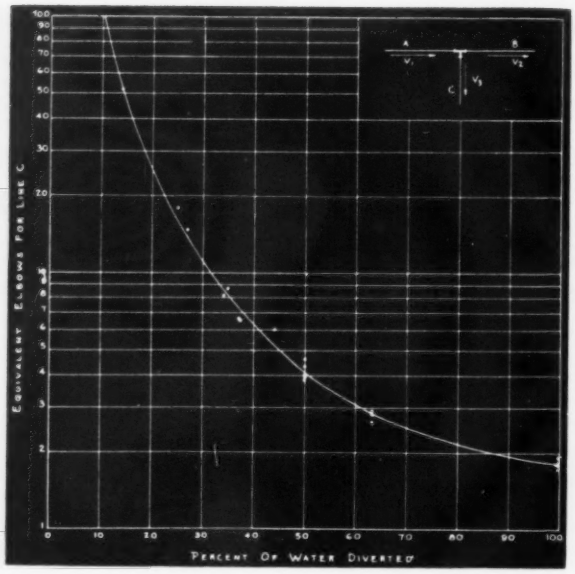


Fig. 1—The friction head in a 1 x 1 x 1-in. cast-iron tee when water enters at A and a portion is discharged at C, in terms of the friction head of an elbow at C

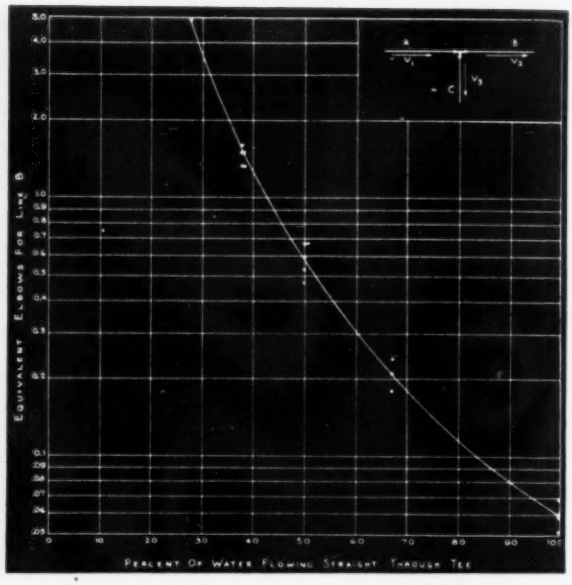


Fig. 2—The friction head in a 1 x 1 x 1-in. cast-iron tee when water enters at A and a portion is discharged at B, in terms of the friction head of an elbow at B

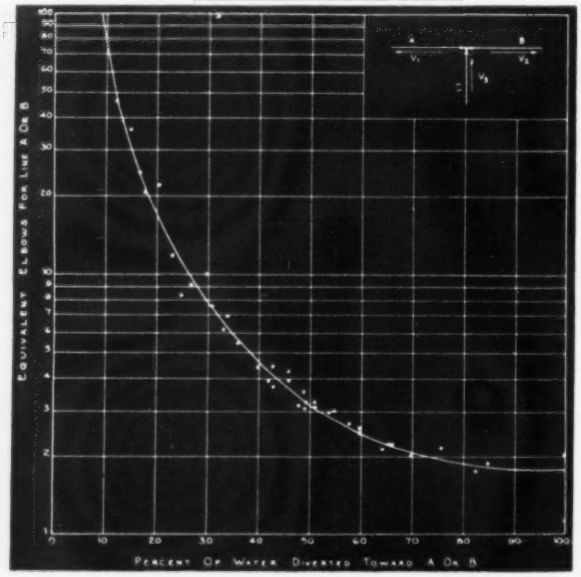


Fig. 3—The friction head in a 1 x 1 x 1-in. cast-iron tee when water enters at C and is discharged at A and B, in terms of the friction head of an elbow at A or B

Friction

By F. E. GIESECKE

A CASE which occurs frequently in practice and for which it is important to know the losses of head in tees is shown in Fig. 9. When the four radiators are of equal size, one-fourth of the water is diverted to the first floor radiator, one-third to the second floor radiator, and one-half to the third floor radiator. If the installation shown were a part of a forced circulation system using 1-in. pipe for the two risers and the four radiator connections, in an extreme case, the losses of head in the three pairs of tees would be, according to Figs. 1 and 4, for the first, second and third floor radiators, 26, 15 and 7 elbow equivalents respectively. As a result, the first floor radiator would be at a considerable disadvantage when compared with the second or third floor radiators. This disadvantage, resulting from lack of knowledge regarding the losses of head in tees, may be responsible in part for the frequently unsatisfactory operation of first floor radiators when connected as shown in Fig. 9.

This article has been developed to show the characteristics of friction, the variables which influence its amount and the results of investigations to measure it for one-inch cast iron tees.

In the first report of this study, which was presented at the Semi-Annual Meeting of the American Society of Heating and Ventilating Engineers at Swampscott, Mass., June, 1931, it was shown that the loss of head in a tee varies with the direction in which the water flows through the tee and also with the proportion of the water which is diverted at right angles in the tee.

It was shown, for example (see Figs. 1 and 2), that when the water enters at one end of the tee and 50 per cent is diverted while 50 per cent flows straight through the tee, the loss of head for the diverted portion is equal

This article contains excerpts from the paper which Professor Giesecke and Mr. Badgett presented at the 38th annual convention of the American Society of Heating and Ventilating Engineers recently held at Cleveland.

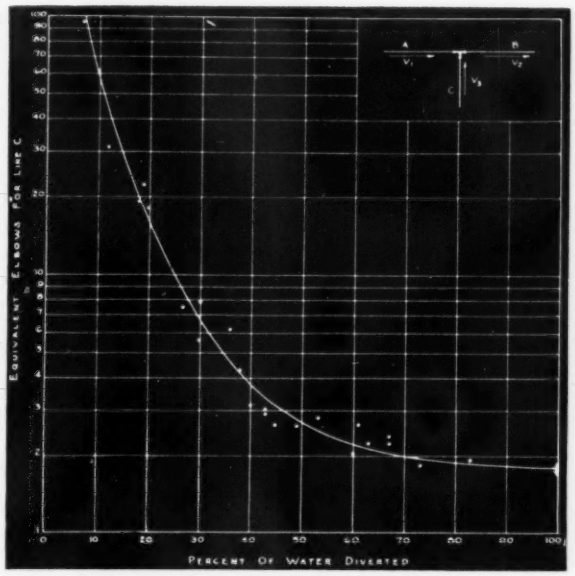


Fig. 4—The friction head in a 1 x 1 x 1-in. cast-iron tee when water enters at A and C and is discharged at B, in terms of the friction head of an elbow at C

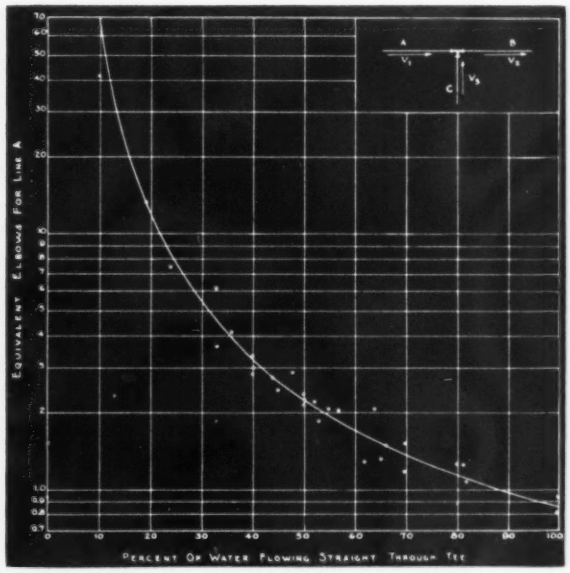


Fig. 5—The friction head in a 1 x 1 x 1-in. cast-iron tee when water enters at A and C and is discharged at B, in terms of the friction head of an elbow at A

in Tees

and W. H. BADGETT

to that in four elbows and the loss of head for the remaining 50 per cent, which flows straight through the tee, is equal to that in 0.6 elbows. In expressing the loss of head in a tee in terms of the loss of head in an elbow, *i.e.*, in elbow equivalents, the loss of head in one elbow was assumed equal to $0.9 \frac{v^2}{2g}$, because in an earlier investigation, the loss of head in a standard 1-in. elbow had been found equal to this quantity. In more recent investigations, it was found that for 1¼-in. and 2-in. elbows the losses of head varied from $0.89 \frac{v^2}{2g}$ to $1.33 \frac{v^2}{2g}$, averaging $1.035 \frac{v^2}{2g}$ for 104 tests. It will therefore be sufficiently accurate for practical purposes to place the loss of head in one elbow equal to $\frac{v^2}{2g}$. This will be done in the following discussions.

Before the tests of the losses of head in tees had been performed, it was believed that the loss of head for the portion of water flowing straight through the tee would be practically zero and might even be negative because when a portion of the water is diverted the velocity of

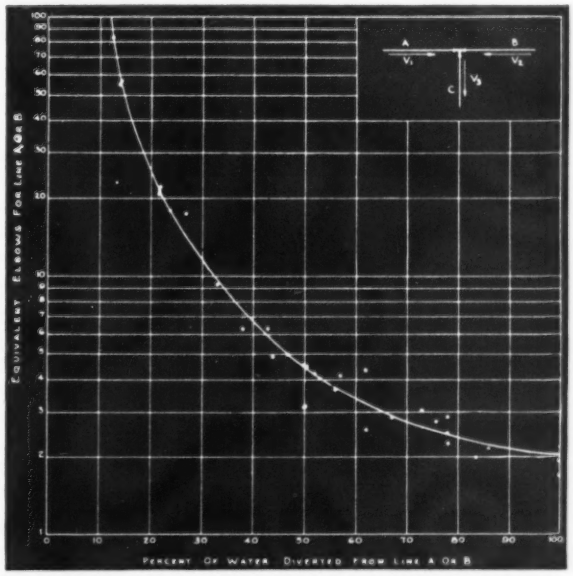


Fig. 6—The friction head in a 1 x 1 x 1-in. cast-iron tee when water enters at A and B and is discharged at C, in terms of the friction head of an elbow at A or B

the remainder is reduced and it was believed that the resulting reduction of velocity head would be as large and possibly larger than the friction head in the tee.

Since the tests proved conclusively that this was not the case, it was decided to substitute a glass tee for the cast-iron tee and to observe the flow of water through the glass tee. In order to make the stream lines visible, small bubbles of gas (hydrogen and oxygen) were produced electrolytically in the fluid stream. The resulting streams of gas bubbles could be seen very clearly and could be photographed when they were illuminated by

Fig. 7—The stream lines and eddies of water flowing through a tee when about 50 per cent of the water is diverted

a thin sheet of light at right angles to the direction from which the photograph was taken. Fig. 7 shows the stream lines and eddies in the glass tee when about 50 per cent of the water was being diverted. It is evident from the picture that no portion of the water flows straight through the tee, but that the entire current is deflected to such an extent that considerable eddying occurs also in the straight portion of the tee. This eddying is, no doubt, the cause of the unexpected loss of head in that portion of the current which passes straight through the tee and which was disclosed by the recent tests.

TESTS FOR VARIATIONS IN FLOW DIRECTION

Having determined the losses of head when the water enters the tee at A and is discharged at B and C (Figs. 1 and 2), additional tests were made to determine the losses of head when the water enters at A and C and is discharged at B (Figs. 4 and 5); when it enters at C and is discharged at A and B (Fig. 3); and when it enters at A and B and is discharged at C (Fig. 6). The diagrams of these figures are to be used as follows:

1. In Fig. 4, if 25 per cent of the water flowing through the tee enters from A with the velocity v_1, the loss of head in the tee for the path from C to B is equal to 10 elbow equivalents of the line C, *i. e.*, equal to $10\frac{v_3^2}{2g}$.

2. In Fig. 5, if 75 per cent of the water flowing through tee enters from A with the velocity v_1, the loss of head in the tee for the path AB is equal to 1.25 elbow equivalents of the line A, *i. e.*, equal to $1.25\frac{v_1^2}{2g}$.

It is interesting to note how much larger the loss of head is in the case of Fig. 4 than in the case of Fig. 2 for the water flowing straight through the tee; with 50 per cent flowing straight through, the two losses of head are 2.25 and 0.6 elbow equivalents, respectively.

3. In Fig. 3, if 25 per cent of the water flowing through the tee is discharged at A (or B) the loss of head in the tee for the path CA (or CB) is equal to 11 elbow equivalents for the line A (or B), *i. e.*, equal to $11\frac{v_1^2}{2g}$ (or $11\frac{v_3^2}{2g}$).

4. In Fig. 6, if 25 per cent of the water flowing through the tee enters at A, (or B) the loss of head in the tee for the path AC (or BC) is equal to 16 elbow equivalents for the line A (or B), *i. e.*, equal to $16\frac{v_1^2}{2g}$ (or $16\frac{v_3^2}{2g}$).

The diagrams of Figs. 1, 3, 5 and 6 are very similar. They are shown collectively by the four dashed light lines in Fig. 8. The differences between these four curves are so slight that they may be neglected for practical purposes and the four curves replaced by one curve as shown by the heavy line of Fig. 8.

It should be noted that as the water, when diverted to C (Fig. 1), approaches the tee from A with the velocity v_1, the velocity in the direction AB is changed from v_1 to zero, and that the corresponding velocity head $\left(\frac{v_1^2}{2g}\right)$ must be transformed partly into heat and partly into pressure head; also, as the water flows from the tee to C its velocity increases from zero to v_3 and that the corresponding velocity head $\left(\frac{v_3^2}{2g}\right)$ must

be produced by a corresponding reduction in the pressure head. During one of the tests an effort was made to determine how much the pressure head builds up in the tee as the velocity of the water, in the direction from *A* to the tee, is reduced from v_1 to zero, and it was found that the increase in pressure head was too small to be measured by the methods used in the test. If it is assumed that the entire velocity head $\left(\frac{v_1^2}{2g}\right)$ is transformed into heat by the eddy currents in and near the tee, and if it is also assumed that the entire velocity head $\left(\frac{v_3^2}{2g}\right)$ is produced at the expense of the available pressure head, the total loss of head in the tee will be $\frac{v_1^2}{2g}$ plus $\frac{v_3^2}{2g}$.

COMPARISON OF CALCULATED AND EXPERIMENTALLY DETERMINED HEADS

To compare the losses of head calculated in this manner with those found experimentally and shown in Figs. 1, 3, 5 and 6, v_1 was expressed in terms of v_3 as follows:

If 50 per cent of the water is diverted, v_1 is equal to $2v_3$ and $\frac{v_1^2}{2g}$ is equal to $4\,\frac{v_3^2}{2g}$, and the total loss of head is equal to $5\,\frac{v_3^2}{2g}$ or to 5 elbow equivalents.

Similar calculations were made for other percentages and the results shown in Fig. 8 by small circles connected by a solid line. It will be noticed that this line practically coincides with the line shown in Fig. 6 for the case when the two currents from *A* and *B* impinge upon each other, but that it gives values about 20 per cent higher than the average of the four curves determined experimentally.

It seems from this comparison that the suggested method of calculating the losses of head in tees may be used with safety for all cases. For example, for a 1½ x 1¼ x 1-in. tee, placed as shown in Fig. 1, assume that 25 per cent of the water is diverted into the 1-in pipe; v_1 will then be equal to v_3 multiplied by 4, and divided by 2.36, the ratio of the two pipe areas; *i.e.*, v_1 will be equal to $1.7\,v_3$. The corresponding loss of head in the tee will be $\frac{v_1^2}{2g}$ plus $\frac{v_3^2}{2g}$ or $3.9\,\frac{v_3^2}{2g}$, or 3.9 elbow equivalents for the line *C*.

For the losses of head in the currents passing straight through the tee, in the cases shown in Figs. 2 and 5, it is evident that the losses in the first case are so small that they may generally be neglected, but in the second case they are of sufficient magnitude to be considered in accurate calculations especially when the portion flowing straight through is from 25 to 75 per cent of the total.

Since writing the above, experimental determination of the losses of head in a 1½ by 1¼ by 1-in. tee were made and it was found that the losses of head are slightly smaller than those calculated by the method suggested. This method of determining the loss of head in tees may therefore be used with perfect safety in designing heating systems.

A case taken from an actual installation and one which frequently occurs in practice, for which it is important to know the losses of head in tees, is shown in

(Continued on Page 105)

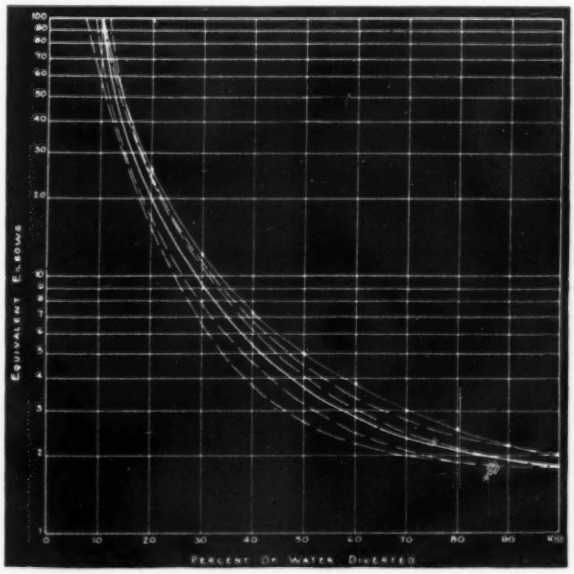


Fig. 8—(left) The friction heads in a 1 x 1 x 1-in. cast-iron tee as shown in Figs. 1, 3, 5 and 6, with an average of these four lines, and a line showing theoretical values calculated by an approximate method

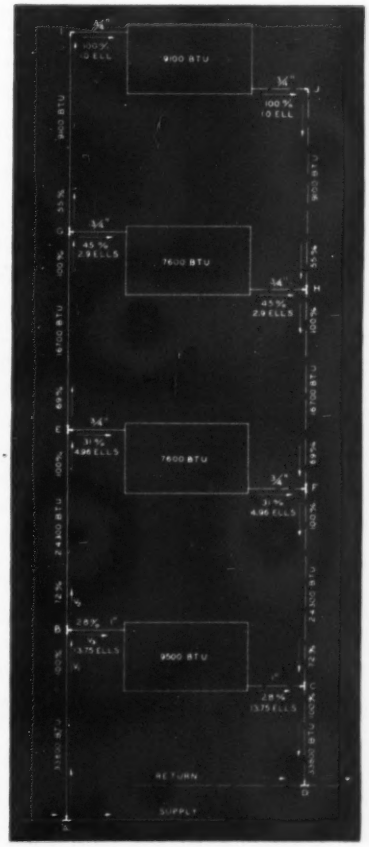


Fig. 9—(right) A common installation in which the friction heads in tees are an important part of the total friction heads in the several circuits

About Folks You Know

Supply News

What's Doing In Business

For Manufacturers, Wholesalers and Salesmen

AIR CONDITIONING MANUFACTURER EXPANDS

B. F. Sturtevant Co., Hyde Park, Boston, Mass., has announced the purchase of the Cooling and Air Conditioning Corp., of New York City. The latter corporation was established in 1924 by the Sturtevant company and was partly owned by Sturtevant. The Cooling and Air Conditioning Corp. is now a wholly owned Sturtevant subsidiary and will operate under its name. It will continue to handle the engineering and general contracting phases of central air conditioning system work.

REFRIGERATOR MANUFACTURER'S SHIPMENTS GAIN

Shipments of electric refrigerators by Kelvinator Corp., Detroit, Mich., for January were 23 per cent larger than last year, according to H. W. Burritt, vice president of sales. "We entered February with unfilled orders twice the total of last year," he said.

MILWAUKEE FLUSH VALVE CO. RE-ELECTS OFFICERS

Officers and directors of the Milwaukee Flush Valve Co., Milwaukee, Wis., were re-elected at the company's recent annual meeting. They include Henry Held, chairman of the board; J. S. Judell, president and general manager; A. C. Held, vice president; J. P. Goodenough, secretary and treasurer; H. J. Held and Bruno V. Bitker, members of the board with the officers named. The company is reported operating at about 90 per cent of capacity.

OIL BURNER MANUFACTURERS OPEN NEW SHOWROOM IN BOSTON, MASS.

Silent Glow Oil Burner Corp., Hartford, Conn., has established a Boston, Mass., showroom at 790 Commonwealth avenue, where a complete line of the company's products is on display. F. W. Chamberlin has been selected to head the Boston organization, and J. E. Gould will be associated with Mr. Chamberlin as supervising engineer. Both were formerly associated with the Silent Automatic Sales Co., Boston.

APPOINTED WATER HEATER DISTRIBUTOR

Arrangements have just been concluded by which the Strong, Carlisle & Hammond Co., Cleveland, Ohio, will act as distributor for the Ruud and Humphrey water heaters, manufactured by the Ruud Manufacturing Company of Pittsburgh. Omar McDowell is district manager of the Ruud company, Cleveland, O.

BUYS RATHBUN PRODUCTS, INC.

Rathbun Products, Inc., Detroit, Mich., manufacturer of electric sump pumps and hot water circulators, has sold its goodwill and all patent rights to the Triangle Mfg. Co., of Detroit, which firm however, will continue to manufacture these products under the Rathbun trade name. W. G. Mason is general manager of the Triangle Mfg. Co.

WILL MANUFACTURE VALVES AND FIRE PROTECTION APPARATUS

The D. & W. Sprinkler Mfg. Co., Athol, Mass., has been organized to manufacture sprinkler valves and fire protection apparatus. The officers of the company are as follows: President, Arthur H. Starrett of the L. S. Starrett Co.; treasurer, Charles H. Cook; secretary, Merwin Kessler, general manager and superintendent of the Athol Machine and Foundry Co.

RICHMOND RADIATOR CO. CALLS SPECIAL MEETING OF STOCKHOLDERS

Richmond Radiator Co., New York, has called a special meeting of stockholders for March 8 to vote on a proposal to exchange present $50 par value preferred stock for new preferred without par value on share-for-share basis.

ALCO VALVE CO. EXPANDS SALES FACILITIES

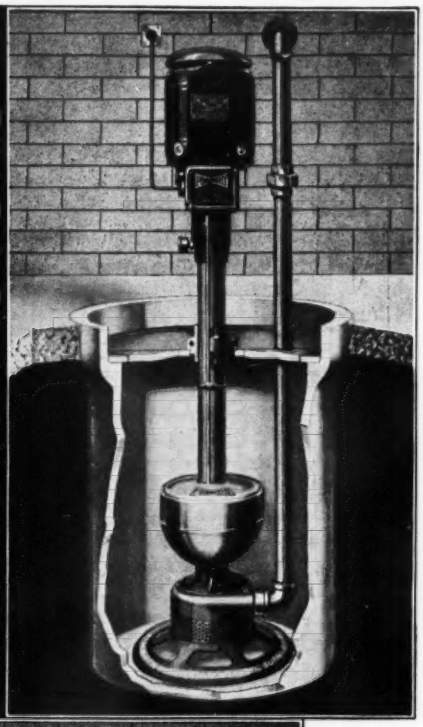
The Alco Valve Co., Inc., St. Louis, Mo., has announced the opening of an eastern sales and service office at 251 West 30th street, New York City, where a complete stock of the company's products will be maintained. R. L. Sparks, vice president of the company, is in charge.

William G. Smith, formerly with the Southern Engineering Co., of Memphis, has recently become associated with the Alco Valve Co. and will have charge of sales in the southern states. He will cover eastern Texas, Oklahoma, Arkansas, Louisiana, Mississippi, Alabama, Tennessee, and western Georgia.

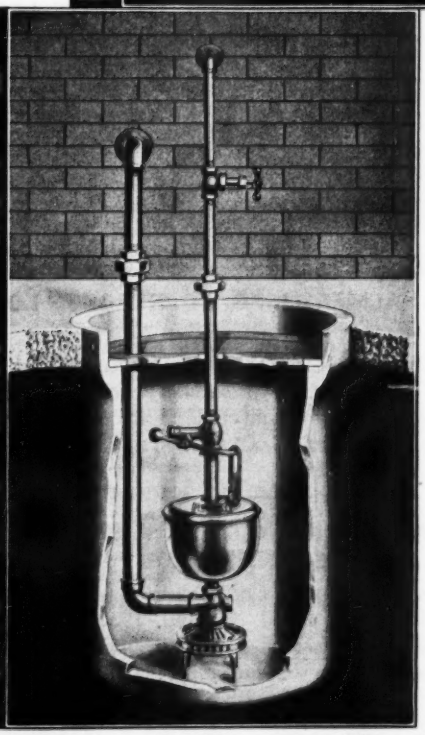
J. H. Fitzpatrick, with headquarters in Cleveland, Ohio, is now covering the Buffalo, Pittsburgh, Cleveland and Detroit district. The territory of A. B. Schellenberg has been extended to include Indiana, Illinois, Wisconsin, Minnesota, Iowa, eastern Nebraska and Missouri. The Pacific Scientific Co., with offices in San Francisco and Los Angeles, will continue to represent the Alco Valve Co. on the west coast.

A few reasons why— Plumbing Contractors install..

BRONZE THROUGHOUT



COPPER AND BRONZE THROUGHOUT



TRADE PENBERTHY PRODUCTS MARK

TO dispose of seepage below sewer level—or where sewerage facilities are not available—many plumbing contractors prefer one of the units illustrated here. Local conditions determine whether the electric or hydraulic unit will be most economical—but both pumps have many characteristics that appeal to the plumbing contractor.

Both the Penberthy Automatic Electric Sump Pump and the Penberthy Automatic Hydraulic Cellar Drainer are immune to corrosion—they are copper and bronze throughout. Both are thoroughly dependable under the most severe operating conditions, and are economical of electricity and water power. They are fool-proof, require no kid-glove handling, and are easy to install—when properly installed there is no servicing to consume time and reduce profits.

Manufacturing a complete line of both electric and hydraulic units in a full range of types and sizes, the Penberthy organization is especially well qualified to recommend the correct equipment for any specific case. Leading jobbers throughout the country stock both electric and hydraulic units.

PENBERTHY INJECTOR COMPANY
Established in 1886 DETROIT Canadian Plant Windsor, Ont.

PENBERTHY PUMPS REMOVE SEEPAGE WATER

UTICA WHOLESALE FIRM ELECTS OFFICERS

Charles Millar & Son Co., plumbing and heating wholesale firm of Utica, N. Y., recently held its annual meeting and re-elected Charles Millar as president. The other officers are David S. Howard, first vice president; Richard U. Sherman, second vice president; Alfred H. Dobson, treasurer; William Girvan, secretary and assistant treasurer. Lyndsay D. Fowler, sales manager. Walter R. Jones and the above mentioned officers will make up the board of directors.

BROOKLYN JOBBER INCREASES FACILITIES

Philip Granoff, plumbing and heating wholesale firm of Brooklyn, N. Y., recently announced an expansion of its facilities. The company has added a line of specialties to its regular plumbing and heating materials line.

MOVES PORTLAND, ORE., OFFICE

The Nichols Products Corp. has moved its branch office in Portland, Ore., from Room 311 to Room 414 in the Lewis building. E. G. Drew is manager of the corporation's Pacific Coast office.

A. M. BYERS CO. DROPS OPTION ON CANONSBURG STEEL PLANT

A. M. Byers Co., Pittsburgh, Pa., has given up the option it held recently on the plant of the Canonsburg Steel & Iron Works, Canonsburg, Pa., where it proposed to produce wrought iron sheets. The company continues to sell this material, however, obtaining its supplies from other mills.

OIL BURNER ASSOCIATION OPPOSES TARIFF ON FUEL OIL

Proposed legislation now before Congress that would impose a tariff or embargo on importation of petroleum and petroleum products was condemned in a resolution adopted at a recent meeting of the board of directors of the American Oil Burner Association in Boston, Mass. Such a tariff, the directors declared, would be a hardship not only to three-quarters of a million home owners who use oil burners, but to every automobile owner in the country and likewise to industry where fuel oil is used for power. A copy of the resolution has been sent to the President of the United States and to the Senate and the House of Representatives now in session.

A. M. BYERS CO. DECLARES REGULAR QUARTERLY DIVIDEND

A. M. Byers Co., Pittsburgh, Pa., has declared a regular quarterly dividend of $1.75 a share on preferred stock, payable May 2 to holders of record April 15.

The company reports for 12 months ended September 30, 1931, net profit of $81,587 after depreciation and depletion. Dividends paid on preferred stock plus adjustments in regard to properties and provisions against book value of securities held resulted in a decline in surplus of $2,008,297, leaving a balance on Sept. 30, 1931, of $3,330,285. Consolidated balance sheet shows current assets of $4,136,978, against current liabilities of $250,579. Pipe mill operations during the year averaged about 25 per cent. Net profit of the A. M. Byers Co. alone was $203,468, but Orient Coal & Coke Co. had a net loss of $121,881.

PASSES 100-YEAR MARK IN BUSINESS

The Ontario Iron Works of Pulaski, N. Y., one of the oldest business firms in Northern New York, recently observed its 100th anniversary. The firm was founded in 1832 by Luther Smith, and in 1892 it was purchased by A. E. Olmstead, father of the present owner, O. B. Olmstead.

OHIO BRASS REPORTS LOSS FOR PAST YEAR

Ohio Brass Co., Cleveland, Ohio, and subsidiaries, report for the year ended Dec. 31, 1931, net loss of $113,773, after all charges. This compares with net profit of $1,817,518 or $4.88 a share on combined 347,534 shares of no-par Class A and B common stocks in the preceding year.

At the annual stockholders' meeting Robert J. Deneen and Merrill W. Manz were named directors to replace Spencer B. Black, deceased, and Cyrus S. Eaton, resigned. Other directors were re-elected as were officers.

U. S. PIPE & FOUNDRY CO. REPORTS LOWER EARNINGS IN 1931

United States Pipe & Foundry Co. East Burlington, N. J., reports preliminary net profit of $1,012,215 for 1931, equal after preferred dividends to 49 cents a common share. This compares with earnings of $3.42 a common share in 1930. Four regular quarterly dividends of 50 cents have been declared, covering payment for the entire year on the issue.

ALLIS-CHALMERS MFG. CO. REPORTS LOWER EARNINGS

Allis-Chalmers Mfg. Co., Milwaukee, Wis., reports for year ended Dec. 31 preliminary net profit of $1,256,431 after charges and federal taxes, equal to 96 cents a share, against $3,604,609, equal to $2.86 a share in 1930.

BASTIAN-BLESSING CO. EARNS 62 CENTS PER SHARE IN 1931

The Bastian-Blessing Co., Chicago, and subsidiaries, for the fiscal year ended Nov. 30, 1931, report a net profit of $71,809 after all charges including taxes. This is equal to 62 cents a share on the 115,000 shares of common stock and compares with $287,892, or $2.50 a share, in the preceding year.

MOVES INTO NEW QUARTERS

E. Stanley Freeman Co., manufacturers' representative of Boston, Mass., has moved its headquarters from 38 Binford street to 207 A street, Boston.

This Way

YOU CAN *Afford All*

the blowpipes you need

Above—*Ten seconds is all you need to change blowpipes.*

Left—*The Prest-O-Weld Detachable Valve Body is supplied on all new-type Prest-O-Weld Blowpipes.*

IF you have been trying to *get by* with too few blowpipes because you have felt that a complete set might cost too much, you will welcome the new Prest-O-Weld Detachable Valve Body Blowpipes.

The Detachable Valve Body is interchangeable on all of the four new-type Prest-O-Weld Blowpipes. When you own one (a Type W-106 for light welding, for instance) you can add a larger welding blowpipe (W-105); a cutting attachment (CW-105); or a cutting blowpipe (C-105), merely by buying the necessary handles, which cost much less than complete blowpipes. And in 10 seconds, without disconnecting the hose or using a wrench, you can change from any one to any other.

Ask your jobber to show you how the Prest-O-Weld Detachable Valve Body works.

THE FOUR NEW-TYPE PREST-O-WELD HANDLE ASSEMBLIES: C-105, W-105, CW-105 AND W-106

★ The new Prest-O-Weld Type C-105 Cutting Blowpipe, for all cutting up to 12 in., is equipped with the Prest-O-Weld Detachable Valve Body.

This light, well-balanced blowpipe is especially designed to resist rough handling. Its patented conical nozzle seat protects the nozzle when the blowpipe is dropped. The head, cutting valve body, and lever are pressure-forged for added strength.

Prest-O-Weld Type C-105 Cutting Blowpipe, complete with 4 nozzles, lighter and wrench.....$42.00

Prest-O-Weld Type C-105 handle assembly, with 4 nozzles, lighter and wrench (same as above but not including the detachable valve body).....$34.00

Prices slightly higher west of Rocky Mountains

THE LINDE AIR PRODUCTS COMPANY

Unit of Union Carbide and Carbon Corporation

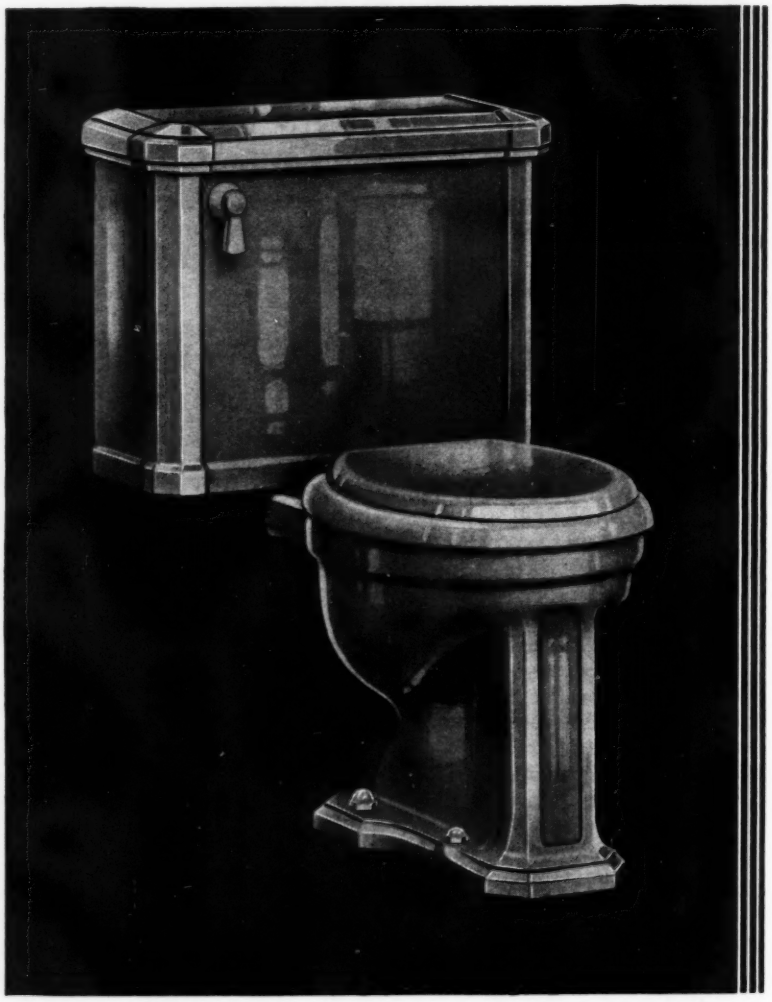
126 Producing Plants UCC 627 Warehouse Stocks

IN CANADA, DOMINION OXYGEN COMPANY, LTD., TORONTO

District Offices

Atlanta	Detroit	New York
Baltimore	El Paso	Philadelphia
Birmingham	Houston	Pittsburgh
Boston	Indianapolis	St. Louis
Buffalo	Kansas City	Salt Lake City
Chicago	Los Angeles	San Francisco
Cleveland	Milwaukee	Seattle
Denver	Minneapolis	Tulsa

LINDE OXYGEN · PREST-O-LITE ACETYLENE · OXWELD APPARATUS AND SUPPLIES · UNION CARBIDE



MODERNO

a new note in closet design

"Standard" designers have made a distinct departure in this new closet combination. Gone is the bulging front of the bowl. In its place is a straight front of pleasing lines which harmonizes perfectly with the straight lines of the tank and the base.

Gone also, from view, is the flush connection. Note particularly that the tank appears to rest directly upon the back shelf giving a more compact and attractive appearance.

There is "Standard" quality as well as modernity in the Moderno. And it can be sold at a price your customers will be glad to pay.

It will be good business to display the Moderno at once in your window or display room—new designs attract immediate attention.

Increase your sales by installing Moderno in old buildings on the "Standard" Time Payment Plan.

"Standard" PLUMBING FIXTURES

Standard Sanitary Mfg. Co.
PITTSBURGH, PA.
Division of AMERICAN RADIATOR & STANDARD SANITARY CORPORATION

SPENCER HEATER CO. ANNOUNCES AGGRESSIVE 1932 PROGRAM FOR INCREASED SALES

"We are going to take this depression thing which seems to have everybody whipped and make it ammunition for our cannons," announced officials of the Spencer Heater Co., to fifty field representatives gathered in Williamsport, Pa., January 19 to 22 for their annual meeting. The four day session opened with a first hand view of manufacturing processes, explained by factory production managers, and reached its climax with an outline of the sales program which is planned to make Spencer show a sales gain for the third successive year.

C. N. Tull, president of the Spencer company who acted as toastmaster at the closing banquet and chairman of the meetings during the four day session, was gratified with the reception accorded the sales program, and commended the field men for their efforts in making 1931 the most successful year in the company's history. A new part in the program for the field representatives was the reading of papers on their activities during the past year, and suggestions for 1932.

First, second and third prizes respectively, for the best papers were awarded to John Howley of Philadelphia, Grant Cole of Springfield, Mass., and C. E. Dennis, of Binghamton, N. Y. Honorable mention was also given to J. H. Kriebel, Drexel Hill, Pa., F. L. Gallagher, Manchester, N. H., and Jack Jillson, Utica, N. Y.

F. W. Earnest, Jr., assistant general sales manager, told of the plan to knock depression in the head. He announced that the company was about to embark on a sensational sales and advertising campaign, with a timely appeal to the public.

Mr. Earnest said, "We are especially going after more business in the first quarter, a period that is considered the dull season in the heating trade. We are going to create business. We are going to tell people, through full page newspaper advertisements, that with antiquated heating equipment and costly fuels, they are still wasting in the basement, the money they are so carefully trying to save elsewhere. We are going to create business for the heating trade, not only by calling attention to this extravagance, but by showing how to remedy it."

After the morning spent in the factory under the direction of F. M. Bender, vice president in charge of production, the field representatives heard J. A. Waddell, chief engineer, discuss technical heating and boiler design problems. J. M. Kipe, special field representative in Philadelphia gave his experiences in the field with the combination gas boiler; G. D. Morrissey, also of Philadelphia, spoke on "Creative Salesmanship," and Daniel Reinhardsen of New York, told his experiences with "Schoolhouse Work." H. V. Beach, treasurer, opened the discussion on the third day on the subject of general business conditions. This was followed by J. A. Smead, credit manager, with a talk on the activities of his department.

H. N. Tolles, of the Sheldon Organization of Chicago, was the principal speaker at the banquet which ended the sales conference. He spoke on sales engineering. His talk followed an address delivered by W. H. Beal, president of Lycoming Manufacturing Company, who reviewed the accomplishments of Spencer and other subsidiaries of the Cord Corp.

EVINS F. GLORE & SON, INC., HOLD ANNUAL SALES MEETING

The annual sales meeting of Evins F. Glore & Son, Inc., New York City, was held recently at the Princeton Club of New York. Twenty persons were present, comprising the company's entire sales personnel. During the day addresses were made by Evins F. Glore, president of the company; Parke H. Holton, vice president in charge of sales; Arthur R. Glore, treasurer; and Henry W. Reis, vice president of W. A. Russell & Co.

At the conclusion of the business meeting the annual banquet was held at which time sales prizes and bonuses were distributed.

DEATH OF EDWARD J. BURKE

Edward J. Burke, head of the E. J. Burke Co., Chicago representative of the B-Line Boiler Co. of Cleveland, Ohio, died on January 23 as the result of a cerebral hemorrhage. In 1925, Mr. Burke entered into partnership with L. F. Blyler as gas appliance distributors, under the firm name of Burke & Blyler. Two years later the business was taken over by Mr. Burke, and renamed the E. J. Burke Co.

Prior to 1925, Mr. Burke had been associated with various gas utility companies for more than twenty years. For fifteen years he was with the Citizens Gas Co. of Indianapolis, Ind., where he organized a new business and appliance department for the company. He was an active member of the American Gas Association and the National Commercial Gas Association. He was at one time secretary-treasurer of the Indiana Gas Association.

DESCRIBES TESTS MADE ON CONCEALED RADIATION

The results of tests on concealed radiation, conducted at the University of Toronto, were described by Professor Allcut of the mechanical engineering department of that institution at the February meeting of the Ontario Chapter of the American Society of Heating and Ventilating Engineers. Members of the local chapter of the American Society of Mechanical Engineers were guests of the evening.

ILLINOIS CHAPTER CELEBRATES "LADIES NIGHT"

"Ladies Night" was celebrated by the Illinois Chapter of the American Society of Heating and Ventilating Engineers at its January meeting in the Hotel Sherman, Chicago. The principal speaker of the evening was Loran D. Gayton, assistant city engineer, who spoke on "Chicago as a Seaport." His talk, which was illustrated with screen slides, was very interesting.

At a brief business session, the following were admitted to membership in the Chapter: George B. Tupper, Airmaster Corp., and George F. Nightingale, Hart & Cooley Mfg. Co. President Aeberly announced the death of James H. Davis, a charter and life member of the society. A resolution of condolence was adopted, a copy of which was sent to the family of the late Mr. Davis.

Business Personals

N. L. BLACKMORE has been appointed manager in Pittsburgh, Pa., for the Federal Radiator Co., of Zanesville, Ohio. Mr. Blackmore was formerly associated with the Automatic Gas-Steam Radiator Co. of Pittsburgh.

KNOX REEVES, advertising manager of the Minneapolis-Honeywell Regulator Co., Minneapolis, Minn., has resigned to become vice president of the McCord Co., Inc., Minneapolis, advertising agency. Mr. Reeves, prior to his service with the Minneapolis-Honeywell Regulator Co., was president of the Reeves Advertising Agency of St. Paul.

JOHN S. WEBB has been appointed general sales manager of Webster Tallmadge & Co., Inc., New York City, manufacturers of zoned heating systems. He was formerly associated with Alfred Kellogg, consulting engineer, and also with the Herman Nelson Corp. of Moline, Ill., as northwestern sales manager. Mr. Webb is widely known throughout the heating trade, for many years being active in committee work of the American Society of Heating and Ventilating Engineers.

John S. Webb

WILLIAM O'NEILL, JR., has become vice president in charge of sales of the Ussesa Sales Co., Inc., manufacturer and distributor of grease separating apparatus and sediment retainers. The company has been affiliated with the Sanitary-Utility Co., both having offices at 189 West Madison street, Chicago. Mr. O'Neill has been active in the plumbing and heating industry throughout the country. Sales plans call for extending the organization throughout this country, Canada and South America.

J. F. MEHLHOPE, formerly Chicago district sales manager for Central Alloy Steel Corp. and later for Newton Steel Co., has joined the sales force of the Chicago Steel Service Co., warehouse distributors for the Republic Steel Corp., Youngstown, Ohio. The Chicago company has recently remodeled and enlarged its offices and warehouse facilities and is expanding its sales force.

HARLAN W. BIRD of Chicago, Ill., has been appointed sales representative in Northern Illinois, Indiana, Wisconsin and Eastern Iowa for Filtrators Company, Inc. He will make his headquarters at 111 West Washington street, Chicago.

J. P. FERGUSON has been appointed by the Reading-Pratt & Cady Co., of Bridgeport, Conn., as assistant general manager of sales. He formerly was sales engineer for the company.

M. WILLIAM EHRLICH has been appointed chief engineer of Commodore Heaters Corp., New York, N. Y. Mr. Ehrlich is an authority on heating matters and is the author of several books and articles on the subject of heating. He is a member of the American Society of Heating and Ventilating Engineers and of the American Society of Mechanical Engineers.

JOHN J. HARUTUN has assumed charge of the metal division of the Eagle Picher Lead Co., in Chicago, Ill. He has been at the head of the company's metal division at Joplin, Mo.

E. F. CHITTENDEN has become sales manager of the industrial materials division of the Owens-Illinois Glass Co., Toledo, Ohio. Prior to assuming his new position, Mr. Chittenden was branch manager for the Herman Nelson Corp. in Detroit, Mich.

M. I. DORFAN has been appointed manager of the Dust Collector division of Blaw-Knox Co., Pittsburgh, Pa. Mr. Dorfan has just terminated a five-year engagement as manager of the Dust Collector division of the Pangborn Corp., Hagerstown, Md. He was previously in charge of dust collector sales for the Allis-Chalmers Mfg. Co., Milwaukee, Wis. He is a member of several prominent engineering societies.

CARL HENZLE has been appointed by the John Douglas Co., of Cincinnati, Ohio, as its representative in the company's New York office in the Strauss building, New York City. Mr. Henzle formerly was with Dimock & Fink Co., also of New York.

WILLIAM R. CAMERON, manufacturers' agent of Brooklyn, N. Y., has been appointed to represent the Triumph Brass Co. of Columbus, Ohio, in the northern New Jersey and Staten Island, N. Y., territory. He will make his headquarters at 3403 Avenue R, in Brooklyn.

W. M. PRICE has been appointed assistant manager of the St. Louis, Mo., branch of Grinnell Co., Inc., of Providence, R. I. The company's St. Louis branch is located at 1140 Central Industrial avenue.

B. F. MCINTYRE is now connected with the Chicago office of The Lincoln Electric Co. of Cleveland, Ohio, in charge of motor sales for the Chicago district. He was formerly with the Industrial Controller Co. of Milwaukee. FRED ARCHER, formerly president of Fred Archer, Inc., has been appointed to the Philadelphia office of the Lincoln Electric Co. He is in charge of motor sales for this office.

R. G. NELSON has been appointed national service manager of Norge Corp., Detroit, Mich. (Division of Borg-Warner Corp.), with headquarters at the Muskegon, Mich., plant. Mr. Nelson has had wide experience in engineering work, particularly in the electric refrigeration field to which he has given careful study for a number of years. He succeeds I. H. REINDEL, who has been appointed assistant to Howard E. Blood, president of Norge Corp.

JOHN WEIL of the John Weil Plumbing Co., New York City, left recently for a five weeks' sojourn in Florida. Mr. Weil's company has just received the plumbing contract for building No. 8 of the Radio City, the vast Rockefeller project now under way in New York City.

CONCEALED HEATING
SIMPLE TO ESTIMATE
EASY TO INSTALL...with

Rome Convectors

Rome Convectors have been standardized both as to types, sizes and methods of installation. In determining these, Rome not only made exhaustive engineering researches, but also consulted leading authorities on the subject.

As a result, Rome has designed Convectors and Complete Units (consisting of both convectors and enclosures) which will definitely meet all the needs of modern construction and trade practice. In addition, this standardization makes selection and ordering a simple matter; it simplifies installation, and tends to eliminate costly errors and delays.

The American Society of Heating and Ventilating Engineers Guide defines CONVECTOR *as "a heater which is enclosed in a duct or cabinet and which gives off heat to an air stream, which passes into a room which is to be heated." Rome Radiation Company is in sympathy with this accurate terminology, and so gives the name "Convector" to its concealed heating units . . .* ROCOP *and* ROBRAS.

In Rome Convectors, quality is not sacrificed to price. Service, efficiency and durability are prime design considerations.

Maximum effectiveness results, of course, from the use of Copper, recognized as having the highest heat conductivity of any commercially available metal. A result of this conductivity is compactness, an important requirement in modern building.

ROCOP and ROBRAS Convectors are described and illustrated in two Rome Bulletins. Tables of capacities and weights, dimension diagrams, and method of installation . . . all are included. We will be glad to mail you copies.

Rome Radiation Company

DIVISION OF

Revere Copper *and* Brass Incorporated

ROME, N. Y.

MARKETS

BUSINESS REPORTS FROM LARGE JOBBING CENTERS

BUSINESS in plumbing and heating materials maintained a moderate pace during the past fortnight, according to the majority of reports from the leading jobbing centers in the country, and little change was apparent in the total volume moved into consumption in comparison with the preceding two-week period. However, several changes occurred during the period in manufacturers' prices.

Effective about February 15, two large manufacturers of wrought iron pipe announced a reduction of price for their lines of standard weight, extra heavy and double extra heavy pipe, of two points of discount, Pittsburgh basing. The same companies announced a like reduction on suggested minimum resale prices.

A company manufacturing drain pipe cleaner, boiler liquid, soldering paste, pipe joint compound, plumber's soil and other closely related products, has issued an announcement to the effect that its customers will be protected against price decline on all of the company's products during 1932.

On February 5, a large manufacturer of plumbers' brass goods issued a new discount sheet for wholesalers to be used in connection with his gross price list dated October 1, 1931. The prices quoted in the new sheet are in line with those announced late in January by several other large makers, and, for the most part, reflect a slight advance in a number of staple tubular items.

December shipments of enameled sanitary ware, based on reports submitted to the Bureau of the Census by 21 manufacturers who comprise practically the entire industry, were 68,605 pieces, as compared with 108,198 pieces in November and 147,679 pieces in December 1930. Total shipments for the entire twelve months of 1931 were 1,853,134 pieces, as compared with 2,434,153 pieces in 1930.

December shipments of oil burners, based on data reported to the Bureau of the Census by 106 manufacturers, were 3,804 units, as compared with 6,413 units in November and 5,025 in December, 1930. Total shipments for the entire twelve months of 1931 were 83,350 units, as compared with 106,065 units in the year 1930.

December shipments of solid porcelain plumbing fixtures, including "regular selection" and "culls," as reported to the Bureau of the Census by nine manufacturers who comprise the entire industry, were 3,559 pieces, as compared with 5,024 pieces in November and 4,276 pieces in December, 1930. Total shipments for the entire twelve months of 1931 were 80,591 pieces, as compared with 92,931 pieces in the year 1930.

accepted!

in AMERICA'S finest homes!

CELL-O-TONE

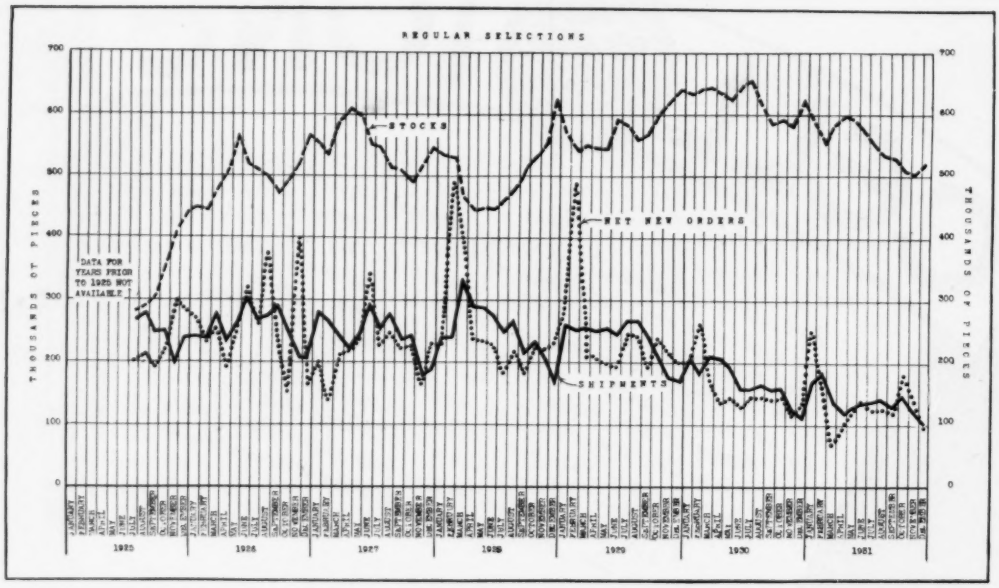
And not only because of its greater heat-saving qualities, ease of application and a multiplicity of technical reasons, but . . . for the many opportunities for better living the use of it brings about! Opportunities for transforming musty cellars into billiard rooms . . . for raising under-house caves to the dignity of play rooms . . . for making damp, dark waste spaces bloom into that badly needed extra room . . . for bringing more cheer, light, health and happiness into homes everywhere. Today, request a Cell-O-Tone Data File so that you may have the facts at your elbow when you plan to take advantage of the opportunities awaiting.

NORRISTOWN MAGNESIA & ASBESTOS CO.
NORRISTOWN, PENNA.

Graphic Record of 1931 Shipments

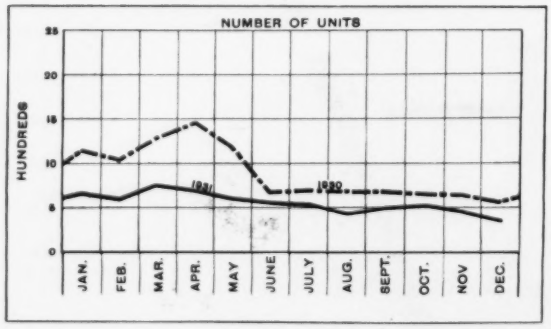
Vitreous China Plumbing Fixtures

(Shipments, Stocks and New Orders)



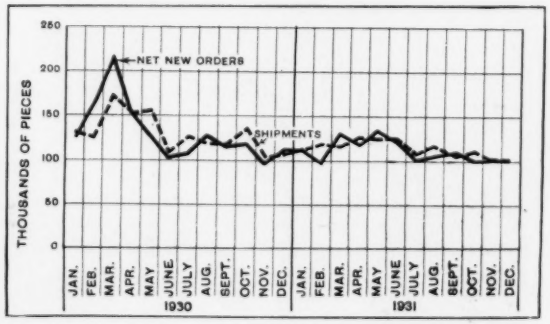
Domestic Water Softeners

(Shipments)



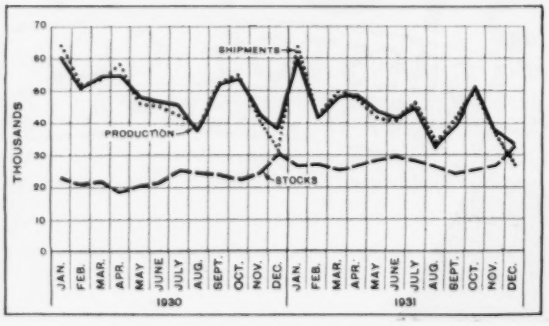
Plumbers' Woodwork

(Shipments and New Orders)



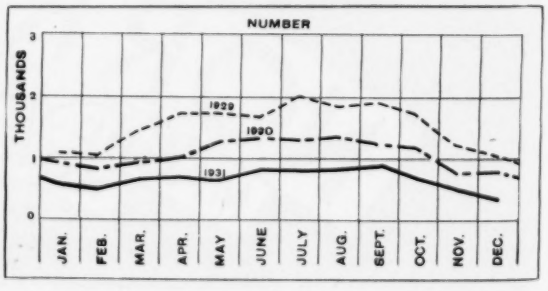
Range Boilers

(Shipments, Production and Stocks)



Steel Boilers

(New Orders)



DOMESTIC ENGINEERING

AN EDITORIAL SECTION

AUTOMATIC HEAT SECTION

The Contents:-

This contractor has a prospect file of complete information, and says it pays to

"Know Your Customers"

Interesting problems and piping arrangements resulted when this heating contractor was called upon to work out

Automatic Heat Controls — How They Are Used to Effect Economies

We show how a contractor, located in a sparsely settled area, makes sales by

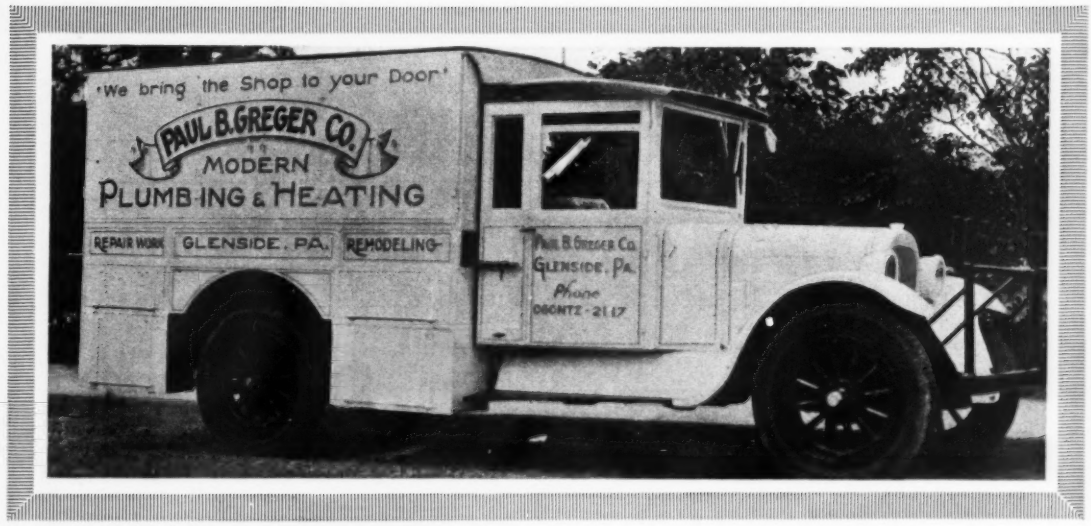
Taking the Showroom to the Customer

A lunch table conversation turned to a description of an oil burner trouble job and resulted in an explanation of how

Noise Is Corrected in Radiator Piping

The field offers so many possibilities and the subject has so many angles that in one article it is possible to cover only

Some Pointers in Heating with Gas

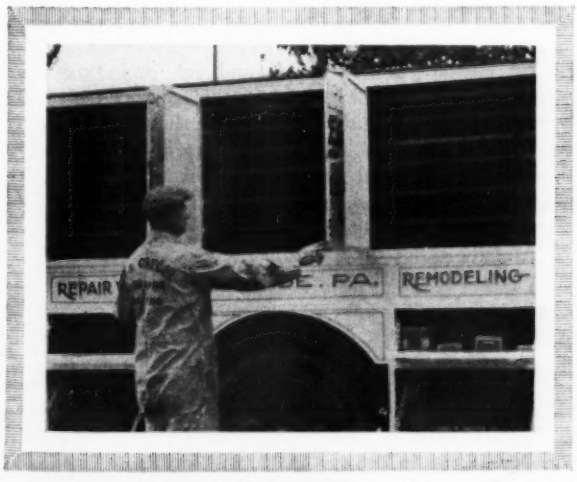


A shop on wheels of special design brings modern repair and remodeling service

"Know Your Customers"

"KNOW thyself," admonished Socrates, to which Paul B. Greger of Glenside, Pa., adds, "and know your customer and what he needs." Sounds simple enough when you hear Mr. Greger say it, and to him it is simple. Nevertheless, behind the success of this man lies a story of systematic attention to the smallest details, such as the average contractor would consider too trifling to bother with.

The truly successful man is usually reluctant to dwell upon his accomplishments. Greger will modestly refer to one year's business of oil-burning equipment totaling $70,000 as a natural sequence of his efforts, a mere matter of getting the orders. In the same manner he will casually mention that he has installed more than a hundred gas-fired heating systems. It's just a matter of course with him, but it has mystified hundreds of others who would like to know the why and wherefore. How does he do it?



Opening the sides of the truck to show bin arrangement

In the first place he is still a young man, he radiates dynamic energy and dominates the interview with his prospect. A piercing eye and an agile mind that reads the customer's objections and answers them even before they are put into words. A vigorous worker, an executive who not only asks for but receives the loyalty and respect that is due him. That is Paul B. Greger, of Glenside, Pa.

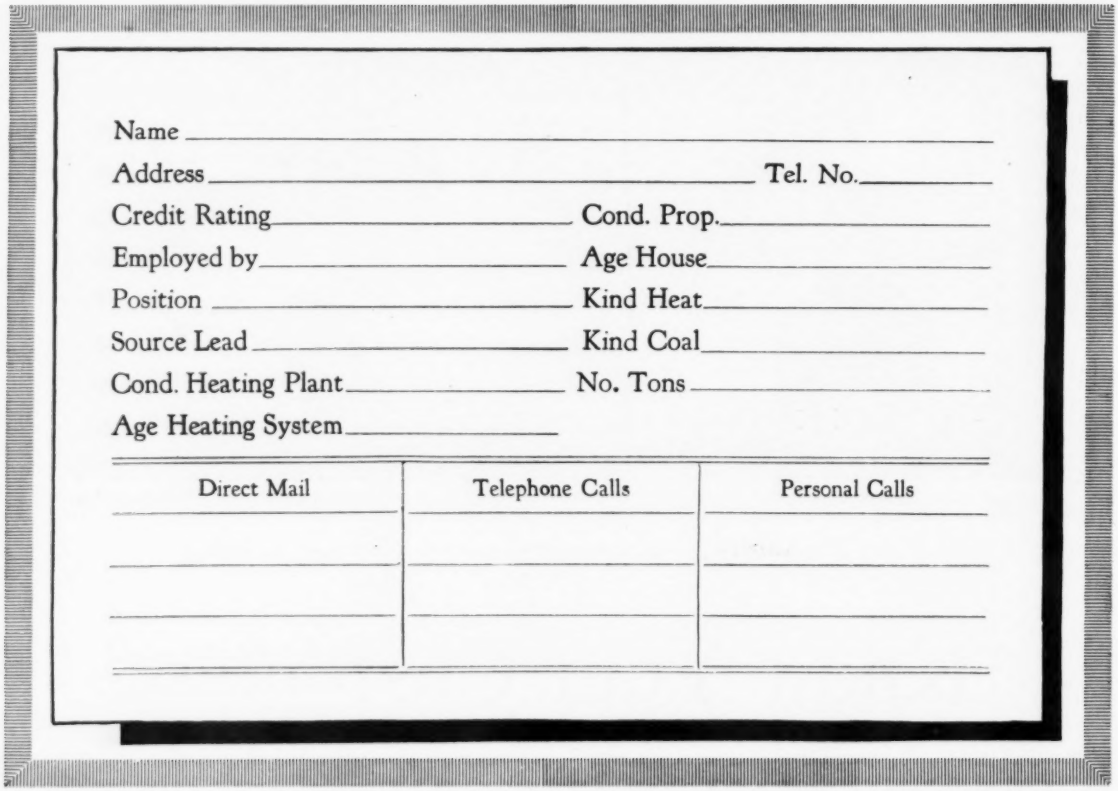
FITS ADVERTISING TO HIS COMMUNITY

"The advertising end of a contractor's business," he remarked, "is something that requires careful study, if it is to be a good investment. The location of a business of this nature is the deciding factor as to the best methods of advertising. At first we used considerable newspaper space. The results did not justify the expenditure. This form of publicity has been discarded. Why? Because we are located in a suburban district and can not depend upon the closely populated section of the city for our business, and yet that is where the bulk of the newspapers are distributed.

"In our territory, price is not the most important feature. It is a class that can not be reached through bargain advertisements or just a mere business card in the newspaper. For that reason a more individual form of advertising is necessary if we hope to get into contact with these people."

Mr. Greger walked over to the filing cabinets and opened a number of drawers showing no less than five thousand indexed cards, one card for practically every home owner in his territory. The interesting part is that these cards listed not only the names of the home owners, but also in minute details the existing plumbing and

AUTOMATIC HEAT SECTION



Name _____

Address _____ Tel. No. _____

Credit Rating _____ Cond. Prop. _____

Employed by _____ Age House _____

Position _____ Kind Heat _____

Source Lead _____ Kind Coal _____

Cond. Heating Plant _____ No. Tons _____

Age Heating System _____

Direct Mail	Telephone Calls	Personal Calls

This is the kind of information Mr. Greger wants about every single prospect on his list. That's why his list is effective

heating equipment in use in that home, the make of the boiler, its age, who installed it, etc. In fact, in most cases Mr. Greger knows more about a man's heating equipment than the man himself does.

"But how do you obtain all this information?" I asked.

"Rome wasn't built in a day," he remarked, cryptically, "and that file represents years of work. It is one of my most valuable business assets. If I want to mail a series of letters advertising gas-fired heating equipment, I can run through that file and unerringly pick out the prospects who can afford this equipment, and who should replace their old systems. Most of these sales letters are personally dictated letters. The personal interest, the mention of their present equipment, secures a reading for these letters where the form letter would be cast aside. If a prospect calls on the telephone, asking for replacement parts, it is more than likely that he doesn't know the style of name of his equipment. I walk over to the file, pull out the card with his name on it, and then I can tell him exactly what he needs, because I have a record of his equipment.

HE GETS SALES INFORMATION

"This information is secured in various ways. My men are taught to be observant when working in a home. Much of the information is obtained from the men and listed on the cards. Naturally, all the equipment that is sold from this shop is entered on the cards. When a new home is being built it is easy enough to get a list of the equipment as it is installed. Last but not least, is the telephone, and a great part of our information is secured by calling up the prospect and asking for the information we want. It isn't as difficult as it may appear, but it does take time."

"I have been told at different times that the telephone can not be used to good advantage to develop prospects," I replied. "It appears that women resent this method of approach."

"They haven't shown any resentment towards us on that account," he countered, "and we have developed hundreds of good prospects in just that manner. For instance, during the late summer months we will begin calling up people whose heating systems we have reason to suspect may require repairs or replacements. The list of customers for repairs and for replacement of boilers that can be developed in this way is truly surprising. We get results from our telephone calls and we use it continuously. Our business is confined entirely to repairs and replacements and I can prove that the majority of our prospects are developed as a result of our telephone conversations."

"And the other prospects?" I asked.

"Some call at the shop, our men bring in quite a few leads, our friends give us some more, newspaper items concerning the sale or remodeling of homes are live leads."

"How about the utility companies, Mr. Greger? Don't they furnish leads for business?"

"That's another story," he retorted, eyes blazing. "Every factor in the trade, nearly every magazine for the trade, is attempting to spread the idea of co-operation between the utility companies and the plumbing and

AUTOMATIC HEAT SECTION

Spencer Combination GAS Boiler

A PROVED SUCCESS

Spencer Sectional Boilers are now designed to permit the installation of the Gas Burner unit later, if desired. A powerful sales advantage, in addition to all the other exclusive Spencer features.

THE new Spencer Combination Boiler, which was introduced last September, has splendidly demonstrated during recent months all the claims made for it. Hundreds of owners have discovered an entirely new kind of heating program. In September, October and November, they burned Gas in the Spencer Combination Boiler; just a few minutes each day, as needed. Starting with December, they have been burning No. 1 Buckwheat Anthracite in the same boiler, at a great saving. They have automatic heat with either fuel. Soon they will again change to Gas. All they need do is to turn an electric switch in the living-room. The experience of these owners proves that the new Spencer Combination Boiler offers Convenience when only a little heat is needed; and Economy and Convenience when much heat is needed. That is what the people want. Be ready for them with this newest heating advancement designed for today's trend. Write for full details.

SPENCER HEATER COMPANY

Division of Cord Corporation

Williamsport, Pennsylvania

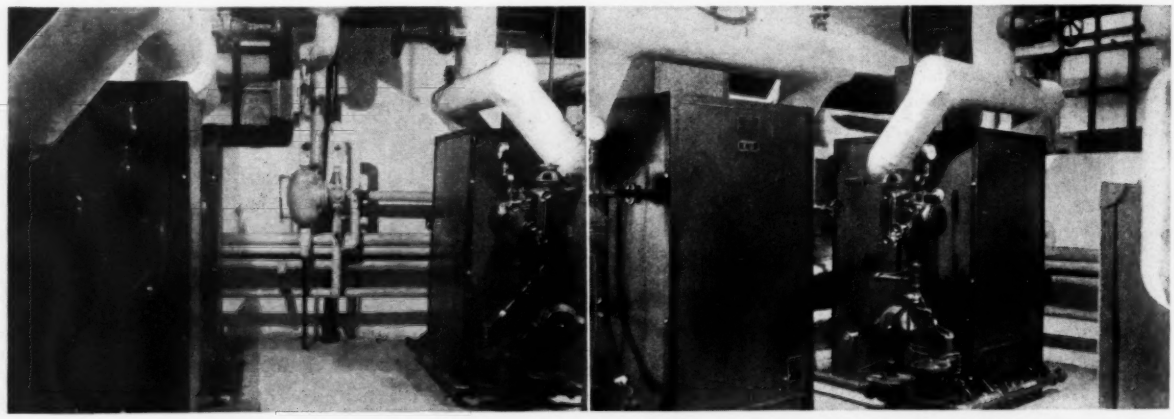
The Spencer Foundry Company, Ltd., Toronto, Ontario, Can.

SPENCER AUTOMATIC HEAT

SPENCER
Magazine Feed
BOILERS
for steam, vapor or hot water

The Lowest Cost Heat You Can Buy!

AUTOMATIC HEAT SECTION



Installations of gas heating equipment in homes where Mr. Greger started with full information of what was needed

heating contractor. Yes, we have sold equipment for the utility companies in our territory. We have co-operated with them. Have they co-operated with us? No. In spite of all the press-agenting to all the trade publications, I fail to see where the utility companies are doing their part in this co-operative plan. They accept the sale but don't pay the commissions.

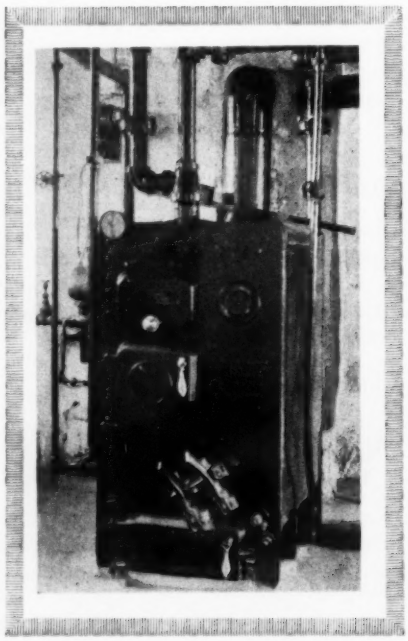
"But isn't it possible," I admitted, "that some of these matters might be corrected if both the individual contractors and the utility companies would present their views and experiences to their trade paper in an endeavor to bring about real co-operation?"

"Time will tell," he answered, shrugging his shoulders. "Suppose we forget about the unpleasant things and look at something new."

ORGANIZING FOR SERVICE

We walked to the front of the shop and there stood the very latest thing of that oft-quoted phrase, a shop on wheels.

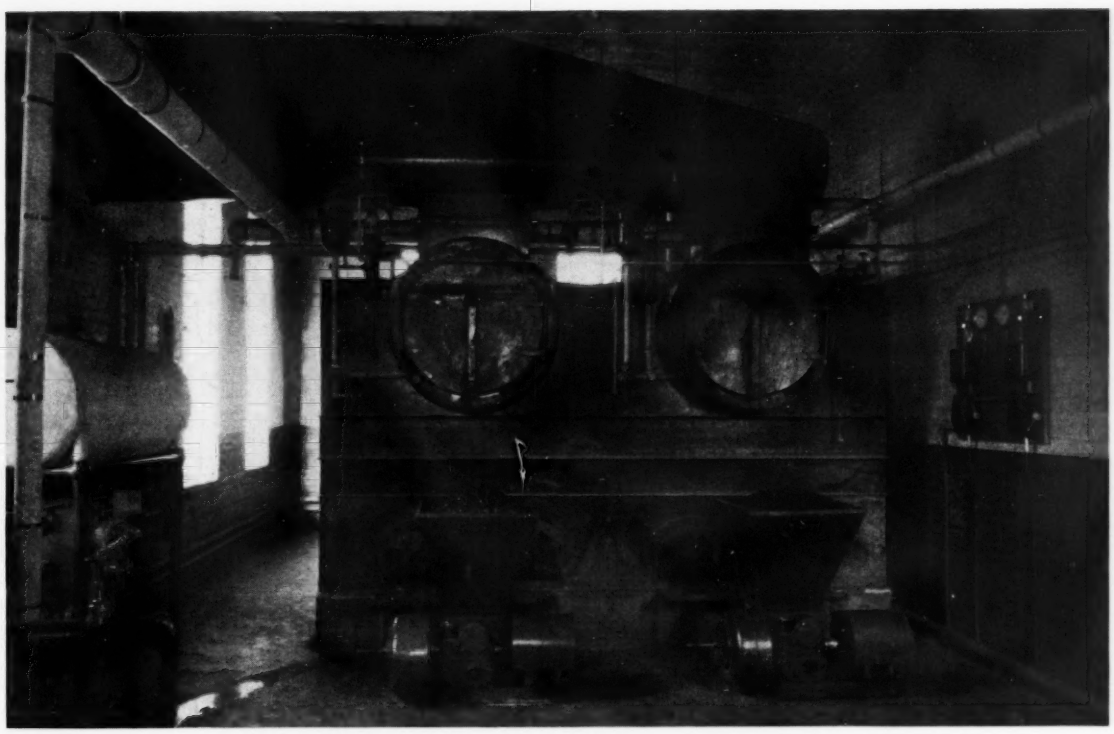
"Took us five months to build it," Greger said, proudly. "Nothing like it from coast to coast. The body was designed by myself to meet certain specific conditions, and is built around a predetermined stock of more than 3,000 individual items, together with a complete set of shop equipment. This shop on wheels, fully equipped and stocked, represents an investment of approximately $5,000, from which three mechanics and one helper serve the public in our locality without contacting the shop for material or equipment."



Another Greger installation, made as the result of a definite recommendation on the basis of the complete information Mr. Greger always makes it a point to secure concerning the equipment in, and needed

"I can easily understand the ease with which you make replacements with such equipment," I replied, "but I don't quite understand the ease with which you sell them. What happens after you do locate a prospect for the replacement of, say a heater? You furnish either oil, gas or coal-burning equipment? Do you recommend the type to use, or do you allow the prospect to select?

"I always recommend a certain type of equipment. Before I call on the prospect I have a good knowledge regarding his home, his habits and his financial condition. I usually recommend either the gas or coal-burning types. If a man is of the type whose first consideration is convenience, regardless of economy, he is a prospect for a gas-fired system. I will talk convenience, freedom from care and work. If the prospect can not afford the maintenance cost of a gas system, I will recommend only our self-feeding type of coal heater, showing him the economy, ease of handling, even temperature and produce recommendations from people who are using this system with great satisfaction. If a man is too economical or is not financially able to maintain gas-fired equipment, it may be a costly mistake for the salesman to make him want the gas outfit so much that he can not be switched over to the coal heater. He can't buy the gas heater and he won't buy the coal heater—not until some other salesman with a better line on his requirements talks only economy and makes the sale. A great part of the success in selling heating replacements lies in the accurately gathered and carefully compiled knowledge the salesman has of his customer and his requirements."



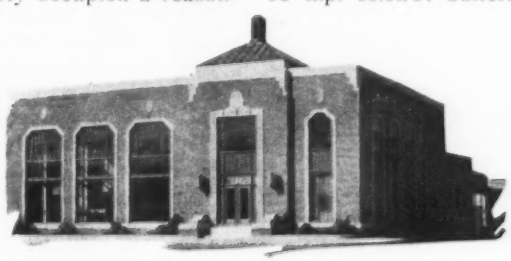
This is a view of the interior of the boiler room showing the stokers in place. All of the instruments, switches, and steam gages were mounted on the panel at the right. The exterior of the building this serves is shown in the illustration below

Automatic Heat Controls

How They Are Used to Effect Economies

THE new Coca-Cola Bottling Co. plant, recently completed at Chattanooga, Tennessee, has attracted considerable notice throughout the South because of its unusually complete and efficiently arranged mechanical equipment. The heating equipment was installed by Knoedler & Meredith, a Chattanooga firm of heating contractors.

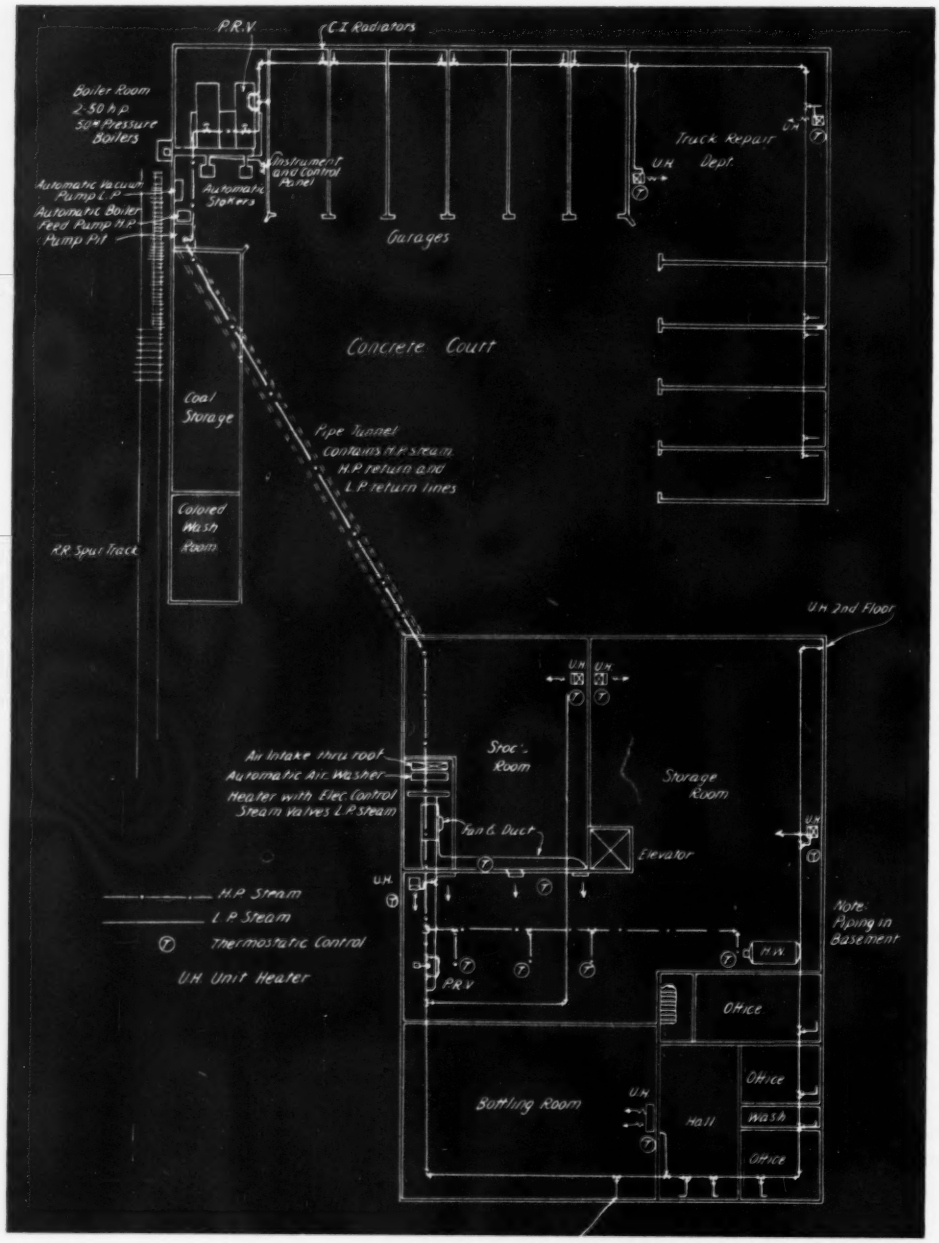
Of especial interest to the heating contractor is the design of the steam system in this plant. Ingenious use has been made of automatic controls in producing and controlling the delivery of steam to various portions of the building and for many types of service. As the owners formerly occupied a reasonably well equipped plant, they were in position to compare the new method of automatically controlling heat and power with the old one, which depended on the personal attention of an engineer and several assistants.



The results, even as shown over the short period since the opening of the new plant, have demonstrated a marked lowering of maintenance and operating costs and, even more important, a far more satisfactory supply of heat, hot water and steam for washing, processing and other uses.

The arrangement of the buildings comprising the bottling plant is shown on page 68 (plot plan of buildings showing steam lines, etc.). The boiler room is a part of the garage group and the pipe lines extend to the main plant through a tunnel running diagonally across the open concrete court. Two 50 h.p. H.R.T. boilers, fired by underfeed stokers supply steam at 58 lb. pressure to the mains. This is the pressure required to properly sterilize the bottles in the automatic washers of the bottling room. Also, this steam is used at the full pressure in a hot water generator at the side of the boilers for supply-

AUTOMATIC HEAT SECTION



By J. H. MEREDITH

This drawing shows a lay-out of the properties. Notice that the boiler room is located at the upper left hand corner and supply and return mains are run through a pipe tunnel

ing the hot water to the colored locker room and the repair garage. Another generator of this type is situated in the main building supplying the plumbing system there with hot water. Both generators are automatically regulated, keeping the water at a fixed temperature by means of a thermostatic valve in the steam supply line.

For all heating purposes, however, the steam is reduced to 2 lb. pressure. One of the reducing valves is in the boiler room itself and the line from it supplies all the radiators and the two unit heaters in the garage group.

The necessity of running a separate heating supply line through the pipe tunnel to the main building was obviated by placing a reducing valve on the high pressure line at a convenient point under the floor of this building. This valve feeds steam also at 2 lb. pressure to the radiators and unit heaters as well as to the tempering coils for the air supply equipment.

The heating contractor also installed the automatic stokers. Before starting the work, the installation details were closely checked to see not only that efficient combustion was obtained, but that the fireman would have a convenient arrangement for cleaning fires, making adjustments and performing his necessary work. The good results obtained since the plant went into operation offer one more convincing proof that the automatic stoker is most successfully handled by the heating contractor, and that its correct

installation demands one of his knowledge and experience.

Note in the boiler room photograph how all instruments, switches and steam gauges were mounted on a single instrument board. The automatic pressure controls, which work through high voltage relays, are set at 58 lb. pressure and the actual gauge pressure will vary only 3 to 4 lb. from this setting. Another interesting feature is the unusual position of the boiler doors. These would be too low for ordinary hand-firing, but in this case the fireman cleans his fires by pulling the clinkers off the stoker dead plates straight through these doors without any inclines or obstructions to catch his hoe. This results in the faster and more thorough removal of clinkers and ashes and less muss and dirt in the boiler room from flying dust. The boilers were locally made and the contractor requested that the manufacturer change the position of these doors on his blueprint to meet the requirements of the stoker-fired job.

THERMOSTATIC CONTROLS

Instead of depending on the haphazard, wasteful method of regulating heat by hand valves, thermostatic control was used throughout, wherever practical. All of the larger work rooms in the plant are heated by unit heaters, and these are controlled by electric thermostats on the fan motors. Thus, without wasting either steam or electricity, the workers are assured of a comfortable temperature at all times.

Another interesting application of thermostatic heat control is to be found on the air supply system. This plant is in a prominent downtown location and frequently is inspected by visitors, so that the spotless cleanliness of walls and machinery has an advertising value as well as a practical importance. A ventilating system was designed to supply an abundance of fresh, tempered and cleaned air. This air is drawn through a roof opening, passed through a bank of steam tempering coils, then through an automatic oil bath air filter. It is finally forced into the bottling room by a centrifugal ventilating fan having a capacity of 20,000 cu. ft. per minute.

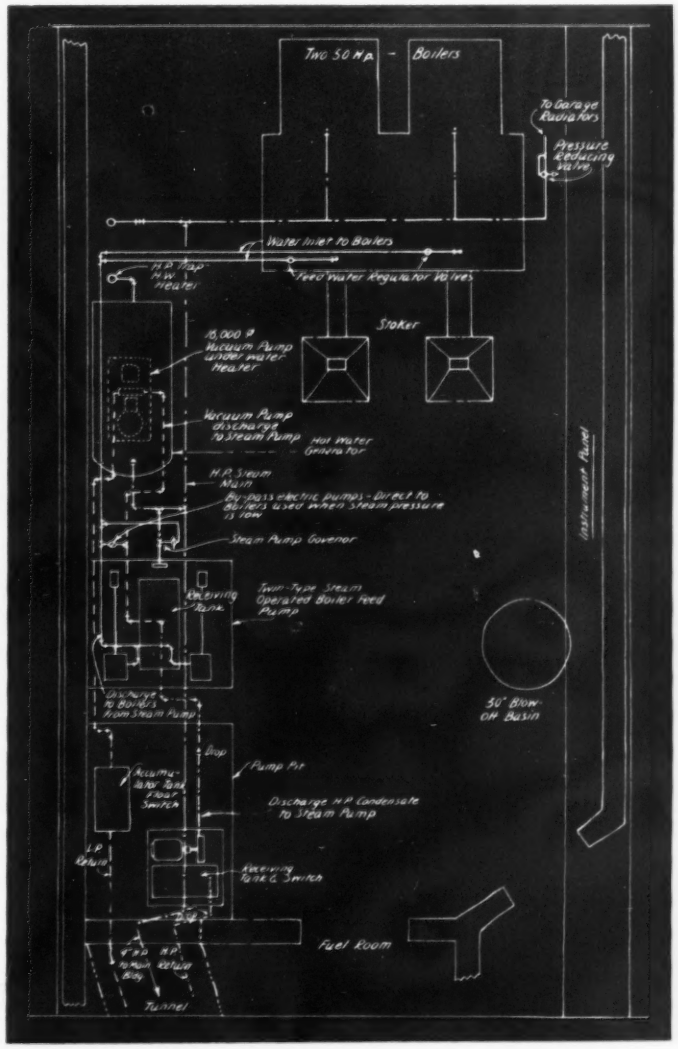
To properly regulate the heat given up to the fresh entering air by the tempering coils, the steam is admitted to each coil by an electrically operated motor valve. The thermostat governing these valves is fitted with a remote thermal element mounted in one of the discharge outlets so that air passing over it registers the actual temperature instantly and accurately.

Even the task of handling the water of condensation and filling the boilers requires practically none of the engineer's time, being regulated entirely by automatic devices.

When the boilers were first put into operation, there was some difficulty with the return of condensate, as there was frequently insufficient steam pressure to operate the boiler feed pump. This is a steam pump requiring a pressure of at least 12 lb. To overcome this trouble, we offered a suggestion whereby the two electric pumps (one used on the high pressure return; the other a vacuum pump on the heating return) would by-pass their condensate around the boiler feed pump, and discharge it directly into the boiler.

These electric pumps, however, would operate in this manner only so long as the steam pump remained idle, and, as the pressure on the boilers gradually rose and enabled the pump to run, it would again handle the job of feeding the boilers while the electric pumps delivered all condensation to the feed

(Continued on Page 73)



Here is an enlargement of the boiler room sketch shown on page 68. The pipe tunnel entrance is at the lower left hand corner. The piping details show how some of the problems were worked out

Taking

W. S. CONKLIN, president of the W. H. Sweezy Heating Co., Inc., of Riverhead, Long Island, N. Y., had an idea. He wanted to sell oil burners in quantities in a territory not any too thickly populated and not any too well supplied with local means of transportation. His establishment stands, where it has been for years, a good stiff ten minutes walk from the center of town, off the beaten path and in a homey little building that looks a deal more like it might be a library branch than the efficient heating establishment it is.

When Mr. Conklin, the grandson of the original founder, came into the business a few short years ago he realized almost at once that here were sales problems that could not be handled by ordinary means. How could people be expected to be impressed by a showroom, no matter how fine, if they never saw it? How could they be asked to come to a more or less out of the way place to witness demonstrations or see new products when the only means of transportation were the customers own cars or their shoe leather? How could canvassing and calls by salesmen be arranged in a territory covering numerous small towns and miles and miles of ground so as not to waste valuable time and effort?

THE PROBLEM

All these and other equally perplexing difficulties were in the way of Conklin's idea to sell oil burners in quantities. The biggest problem, of course, was that of demonstration. Without it he knew he could not hope to close as many sales as his potential market showed were available. He might possibly arrange enough appointments within his own town to do a fair business but he realized that if he ever hoped to reach out into the township and environs he must develop some radical and efficient method of bringing the demonstration nearer to his prospects. The establishment of sub-agencies (plumbing and heating contractors in the very small villages and towns) seemed to be the only solution but if this were undertaken it would necessarily entail a tremendous outlay in cash to put a burner at each of these places and maintain it. Taking the new prospect to the house of an old and satisfied customer could not even be considered for three reasons: First, distances were too great; second, such appointments depend upon the convenience of two people instead of one; third, there were not enough oil burners installed in the territory at the time to make this method any more convenient or less costly than taking people back to the showroom at the home office.

The way this difficult barrier was overcome was, in this instance, not only interesting but novel. W. S. Conklin could not bring his customers to his oil burner so he took his oil burner to them. He found a manufacturer of automobile trailers who markets an elaborate, large "home on wheels." It is roomy, luxurious, and

the Show Room to the Customer

makes an excellent showroom. A shiny new coupe was obtained to pull it and the whole is so impressive that crowds gather about it wherever it is parked. But here is the stroke of sheer merchandising genius. An actual, working demonstration of the oil burner that it displays can be given at a moment's notice. Incidentally, so also can the bottled gas range, washing machine, and other household appliances be operated.

THE SOLUTION

The solution is simple. The showroom on wheels simply drives up to the prospects home, she agrees to a demonstration, a long extension cord is run into a wall outlet somewhere in her house and all she has to do is to step as far as the curb to see the burner actually operate as it will in her basement. No trouble, no effort. Or again, the trailer is parked in the centre of some small town. Arrangements are easily made with some merchant for an electrical outlet in his store. The wire is strung overhead or underfoot and soon a curious crowd is unconsciously being given a demonstration showing the merits of the burner.

The interior of the trailer is spacious and efficiently furnished. Soft, leather upholstered, club-type chairs are placed in advantageous positions. Across the entire forward end a built-in couch easily accommodates four or five people. The oil burner is installed at the extreme rear. At first a regulation boiler was also carried but this proved to be too heavy and a boiler was devised from a large steel gasoline drum which serves the purpose admirably, yet economizes on weight. This arrangement allows the burner to be used for long periods without fire hazard.

This showroom on wheels was announced with large signs and advertising in the local papers. To say that it caused a sensation in the territory is even putting it mildly, for the first month it brought in over two hundred inquiries. People are so intrigued with it that they welcome demonstrations and it is rare when giving one at a particular house not to have several of the near-by neighbors drop over with curiosity as their original purpose only to become really interested in an oil burner or some other appliance.

IT BRINGS IN LEADS

It wasn't long before the novel showroom was working day and night. Leads began to

At upper left and lower right on these two pages are views of the showroom. In between are views of the automobile showroom which travels through Long Island

AUTOMATIC HEAT SECTION

A complete view of the display car as it looks to the person who sees it on the street

pile up so fast that a new method had to be enforced to classify and handle them. "Hot prospects," were filed in a card index according to the date that a demonstration was to be given. Class "B" prospects were filed alphabetically. Direct mail advertising went on during this time uninterruptedly and each piece of this matter either mentioned or pictured the moving showroom. Soon the entire territory became familiar with it. Those who had held back from examining it now came forward, their timidity overcome. Other people began to ask about it in the little towns in which they resided.

This latter development gave Mr. Conklin still another idea. Scattered throughout some of the smaller towns are good plumbing and heating contractors who had never been particularly active as merchandisers. Some of them being so small in fact that they could not afford to stock showrooms or pay overhead on places large enough to have showrooms. Yet they were good contractors, well established in their respective communities and well liked. Most of them were only too glad to tie up with him as sales representatives. They developed leads and made appointments for the "showroom-on-wheels." They are paid a straight commission on all sales and of course bear none of the selling overhead beyond the contribution of their own time. The system has worked admirably and the result is, the W. H. Sweezy Heating Co., Inc., has eight all but branch offices scattered throughout the eastern section of Long Island.

In one or two places, where there was no suitable plumbing and heating contractor, other merchants are given the same advantage. In one town, for instance, there is an excellent painting contractor who is so well established that he does the bulk of the work in his vicinity. Because he gets into houses, it is easy for him to see the condition of heating systems and consequently he is one of Conklin's most productive sales representatives. In another town, arrangements have been made with the household department of the local department store and in this way some very excellent prospects are turned up.

Every available sales avenue is patrolled and new ones are constantly being developed. In working this way the staff of the home office can be kept to an economical minimum. Only a sales manager is really needed and of course a driver for the rolling showroom, who also

Reaching two markets
—with minimum sales effort!

An opportunity for all oil burner accessory manufacturers to reach two big markets in the oil burner industry: the direct, national manufacturer and dealer market and the extensive, wealthy consumer's market in New England. Live exhibits will assure a large and enthusiastic audience.

Wire or write the American Oil Burner Association, 342 Madison Avenue, N. Y. C., for information on available space and rates.

OIL BURNER SHOW

BOSTON · APRIL 11 to 16

» DECIDE TO GO . . . PLAN TO EXHIBIT «

can very nicely serve in the capacity of a salesman.

CONVENIENT DEMONSTRATIONS

Because so much actual selling of oil burners has to be done at night, when families are all together, this always bad feature is turned to an advantage in this case because the trailer is wired so that it can be brilliantly lighted. Of course it is not necessary for a man and wife contemplating buying a burner to give up most of their entire evening visiting a store showroom or the home of a user. The oil burner is brought right to their home, they do not have to bother even about how they are dressed and in a few brief minutes everything that took them hours to accomplish before is completed. For this reason several night appointments can be handled easily even though the prospects live miles apart. The "showroom-on-wheels," incidentally rides like a pullman car and is capable of ordinary everyday auto speeds. It is not at all unusual to cover anywhere up to a hundred miles, making calls and giving demonstrations, in an afternoon and evening. In fact, while the data for this report was being taken we were whizzing along merrily at a fifty-five mile clip, to see a customer twenty-two miles distant.

In spite of the success of the display car, Mr. Conklin still maintains his showroom.

Automatic Heat Controls

(Continued from Page 69)

pump's receiving tank—as they were originally designed to do.

This pump hook-up was installed only after we had given it a considerable thought and study and it has solved the problem in a most satisfactory and efficient way. No trouble has since been encountered with low boiler water or a delayed return of the condensate.

BOILER ROOM: COCA-COLA PLANT

Several interesting features of the plant are shown in the boiler room photo. The two 50 h.p. boilers are fired by an automatic stoker. Note that the needle of the gauge on the instrument panel shows that the left hand boiler was carrying the entire load. It happened that the stoker under this boiler was running at the moment the picture was taken.

The water inlet lines to the boilers are each fitted with a feed water regulator and the float chambers controlling these valves may be seen at the side of the water columns.

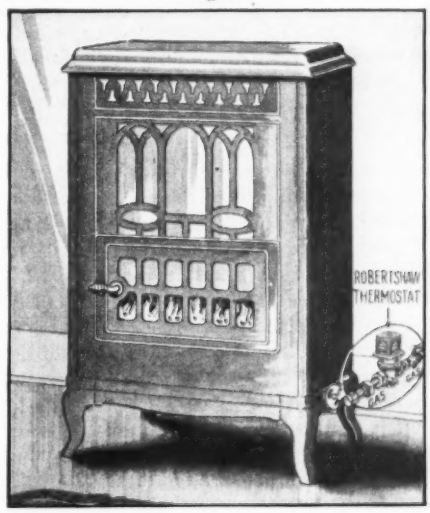
To the left, a part of the pump assembly may be seen. The vertical covered pipe is the high-pressure take-off to the steam pump. The covered tank is the hot water generator or circulating tank. This also uses high pressure steam and is controlled thermostatically by a regulator whose flexible tubing can be seen on top of the tank.

The receiver under this tank belongs to the vacuum pump.

The pit which holds the condensation pump and the tank for receiving low pressure condensate is not visible in this view but is directly to the left of the spot where the camera was set up to take the picture.

ROBERTSHAW
SPACE HEATER
thermostat

AUTOMATIC HEAT SECTION



CONTROLLED HEAT

is just as important, for both health and economy, in the space heater as it is in all other gas-fired heating plants. ▲ It is mighty easy to install . . . and it means extra profits on every installation. It is accurate and automatic, small and compact, durable and trouble-proof. You can add it to any space heater, new or already in use. ▲ This Robertshaw Thermostat is furnished with the new non-clog by-pass, which controls the minimum burner or by-pass flame. Be sure you know the extra money this popular thermostat will bring you this season.

WRITE
FOR FREE
FOLDER AND
INSTALLATION FACTS

ROBERTSHAW THERMOSTAT CO.
Youngwood, Penna.

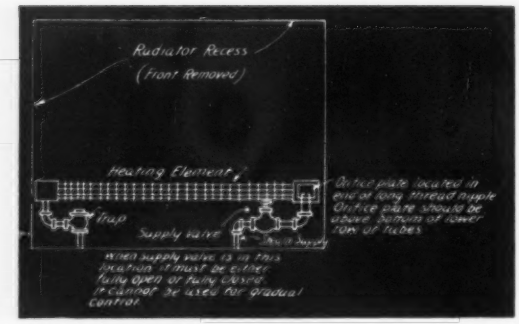

Radiator Recess
(Front Removed)
Heating Element
Orifice plate located in end of long thread nipple. Orifice plate should be above bottom of lower run of tubes
Trap
Supply Valve
Supply
When supply valve is in this location it must be either fully open or fully closed. It cannot be used for gradual control.

Fig. 1—This shows how the orifice plate should be installed for concealed radiators with removable fronts. Note the valve should not be used for graduated adjustment with this arrangement

Noise Is Corrected

LAST week at a meeting of our luncheon club I met a friend of mine, Don Barnes, a local heating contractor. Mr. Barnes had two out-of-town guests, both of whom were heating contractors also. After the introductions we began to talk shop, as usual. Soon the conversation drifted to automatic heat installations. All three of the contractors became enthusiastic on the subject, but Mr. Davies, one of the guests, said that he was having trouble with his last automatic heat job.

"What kind of a job is it, Mr. Davies?" I inquired, for a trouble job commands my interest at once.

"Oh, it's a regular vapor system," he said, "with an oil burner and boiler combination. The burner is controlled by a thermostat in the living room. The owner likes the job very much, but a few minutes after the clock raises the thermostat setting in the morning there is noise all over the house. This takes place about 6 a. m. and since the owner does not want to get up until 7 o'clock, it disturbs him a great deal. I can't blame him at all for complaining, can you?"

"Is this the only time the noise occurs?"

"No. It happens every time the burner is turned on, but it doesn't seem so bad during the day. It lasts such a little while that they don't mind the noise when they are awake. They have several children, so a little more noise is scarcely noticeable when everyone is awake. I went over there at 6 o'clock the other morning and in that otherwise quiet house the noise in the radiators seemed extremely loud. I reduced the morning noise by telling the owner to keep the thermostat set for 72 deg. Fahr. all night long. This stopped the noise at 6 a. m., but the owner called me up this morning and told me that the same noise occurred at 2 a. m., awakening everybody in the house. It wasn't quite so loud as it usually was at 6 o'clock, though. I surely wish I knew what to do about it."

"Did you use orifices?"

"Yes. I always install them in this kind of a job."

"What kind of radiators did you install?"

"I used lightweight concealed radiators. You know the kind, using a steel panel across the entire front with the trap and valve below the heating element."

"Where is the orifice plate located?"

"In the valve spud."

"And the valve is located below the heating element?"

"Yes. I'll sketch it in this little note-book for you, to make it clear." His sketch is reproduced in Fig. 5.

"I believe I can suggest a remedy for your troubles," I said after looking at the sketch carefully. "Did you notice the size of the orifices in the orifice plates?"

"I did notice it, for they looked so small to me that I

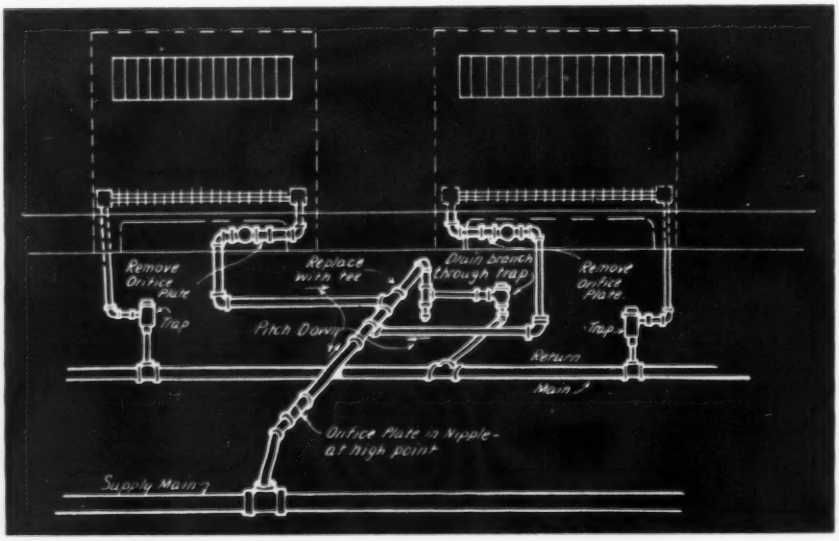


Fig. 2—These are the original orifice connections for the dining room radiators which proved noisy

in Radiator Piping

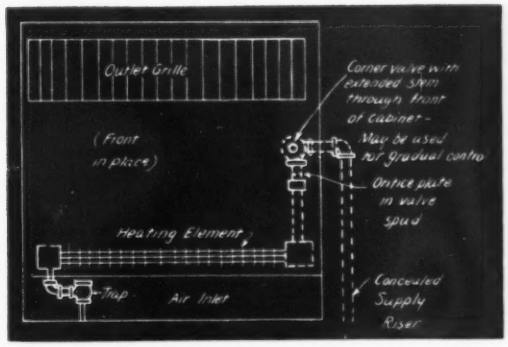

Outlet Grille
Corner valve with extended stem through front of cabinet - May be used for gradual control
(Front in place)
Orifice plate in valve spud
Heating Element
Trap
Air Inlet
Concealed Supply Riser

Fig. 4—The orifice plate is installed properly in this drawing. There is no way for the condensate to fall back into the supply and retard the flow of steam with consequent noise

wondered if they were too small."

"No, probably not."

"Then what causes the noise?"

"By 6 o'clock in the morning, the heating elements and the piping are all cool. The first steam generated by the boiler is condensed when it strikes the cold piping. When installing your piping, you pitched it in such a manner that this water flows back to the boiler. However, there is a short section of pipe before each heating element which cannot drain properly."

"Where's that?"

"Between the orifice plate and the heating element. The first steam that passes through the orifice strikes the cold pipe and is condensed. The water drops down and tries to flow back through the orifice. But the steam is coming through so fast that the water simply doesn't have a chance. The water is blown back and the steam gurgles through it, causing the noise you described."

"Why was the noise more pronounced in the morning than it was during the daytime?"

"In the morning the piping was cold, for the burner had not run all night, the thermostat having been set at 60 deg. Fahr. until 6 a. m., when the clock raised the thermostat setting to 72 deg. Fahr. Consequently, a great deal of water was formed, for a large amount of steam was required to heat the cold piping. During the day the piping did not cool off so much and less water formed."

"That's reasonable. Then why did the noise last for only a few minutes?"

"Because the steam gradually blew the water up into the heating element and it drained away. This probably took place in five or six minutes."

"What is the solution? Shall I take out all of the orifices? If I do, the job probably will not heat evenly."

"No. All you have to do is to relocate them. Orifices should always be located where water cannot collect on the discharge side of them. I suggest that you put each orifice in the end of a long thread and screw the nipple up into the header of the heating element far enough for the orifice to be above the bottom of the lowest row of tubes. Here, I'll make a sketch for you. (The sketch is reproduced in Fig. 1.) In this way the orifice will work quietly and, in case of trouble, it can be removed easily.

"Before we change the subject, let me warn you about one thing. When the supply valve is located as shown in Fig. 1, it can not be used for throttling purposes."

"Why not?"

"Because, a partially closed supply valve is really just like an orifice. As a matter of fact, a valve is nothing more than a variable orifice. I hope you never have to

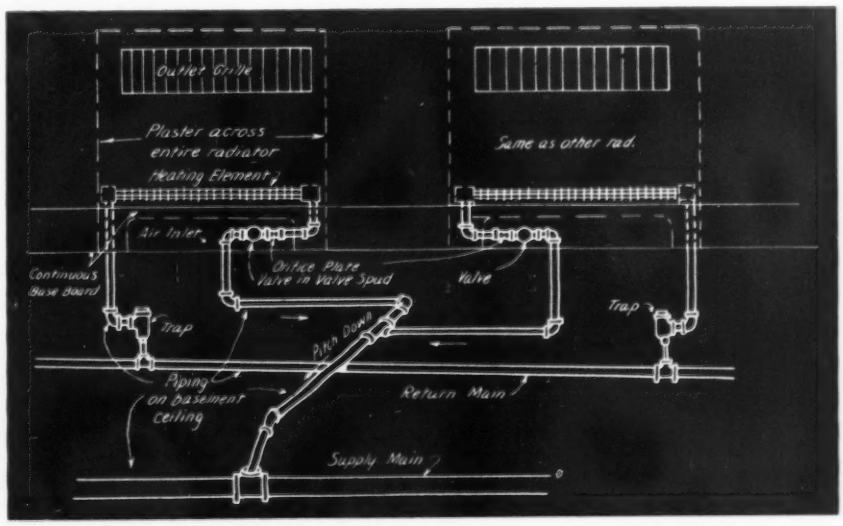


Fig. 3 — This shows the method of using one orifice for two radiators in overcoming noise in the system

AUTOMATIC HEAT SECTION

throttle any of the valves on your job."

"That reminds me of something. I'm afraid we will have to throttle one or two of the valves. The oldest son wants his room about 68 deg. Fahr., while the rest of the family seems to want 72 deg. Fahr., or higher. Just the other day he asked me if I could not give him a little less heat, so I told him to throttle the valve on his radiator."

"Couldn't he partially close the damper on his radiator?"

"No, because the radiator in his room has a special front without a damper. How can I satisfy him if I can't throttle the valve on his radiator?"

"You can do one of two things. The easiest thing would be to put a smaller orifice in his radiator. Or you could relocate the valve so that it may be throttled."

"Using a smaller orifice would be the easier way, but there is a drawback to that. The son is a fresh-air fiend, and I'm afraid the room would be too slow in heating up if I put in a smaller orifice."

"Under those circumstances, then, I expect you'd better relocate the valve. Can you remove the front of the radiator and relocate the valve above the heating element?"

"Yes, that can be done all right."

"Then I would suggest using this arrangement. (See Fig. 4. By using an extended stem, the valve may be located above the heating element and it may safely be used for throttling. Then, too, the orifice is so located that the steam and water flow in the same direction, with quiet operation as a result."

When the meeting broke up, Mr. Davies came over to me and said, "May I ask you one more question?"

"Surely."

"All during the meeting I've been thinking about your suggestions and I remembered that I installed two radiators in the dining room in such a way that I'll just about have to ruin the interior of this finely finished room in order to install the orifices at the end of long nipples, as you suggested. Is there any other way of changing them?"

"How is the piping arranged?"

"About like this," he said, as he reached for his notebook and started sketching. His sketch is shown in Fig. 2.

"You see," he continued, "the architect wanted this room to be particularly fine, so he insisted upon plastering across the fronts of both radiators. Then, after we had all of the piping installed, he ran a continuous baseboard across the side of the room, and cut holes for the air inlets to the radiator. I protested that we could never get at the piping, but my objections were over-ruled. I guess I'm up against it now."

"No. I don't believe it is as bad as it might be. You can do this," I said, as I sketched Fig. 3 for him.

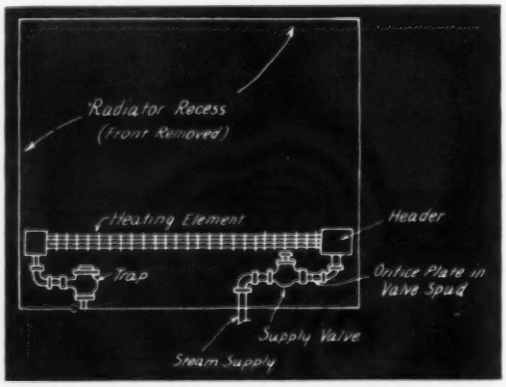


Fig. 5 — This shows the original orifice plate connections which proved noisy.

By EARL BROWN

"First, remove the orifice plates from the valve spuds of both radiators. You can get at them, can't you?"

"Oh, yes, but I couldn't put in the long nipple you recommended before."

"You won't have to. Then take down the branch from the main and install an orifice large enough for both radiators near the main and reinstall the branch so that the orifice is at the high point. Instead of feeding the left-hand radiator through an ell, use a tee and drain the run opening through a trap into the return main. If you do this the orifice will be so located that any water which collects will flow with the steam and will be drained out of the end of the branch through the trap. In this way, little or no piping will be drained through the orifice which will reduce to almost nothing the possibility of scale lodging in the orifice."

"Will it be satisfactory to use one orifice for two radiators?"

"If the orifice is properly sized and both radiators are in the same room."

"Will both radiators heat evenly?"

"I believe they will, because the piping is almost the same to each one. Even if they don't heat evenly, it won't make any special difference, because they are both in the same room. If one heats a little more than it should, the other will heat a little less, so the total will be right."

"That change won't be so hard to make, after all. Well, I'm all ready to go back to work now. I'll let you know how the job works out. Many thanks."

A few days later the following letter was received:

Dear Mr. Brown:

I made the changes as you suggested, in the Harris job. Everything worked fine except one of the living room radiators, which I had changed in accordance with your Fig. 1. This radiator did not seem to heat up properly and made a gurgling noise, as long as the boiler supplied steam.

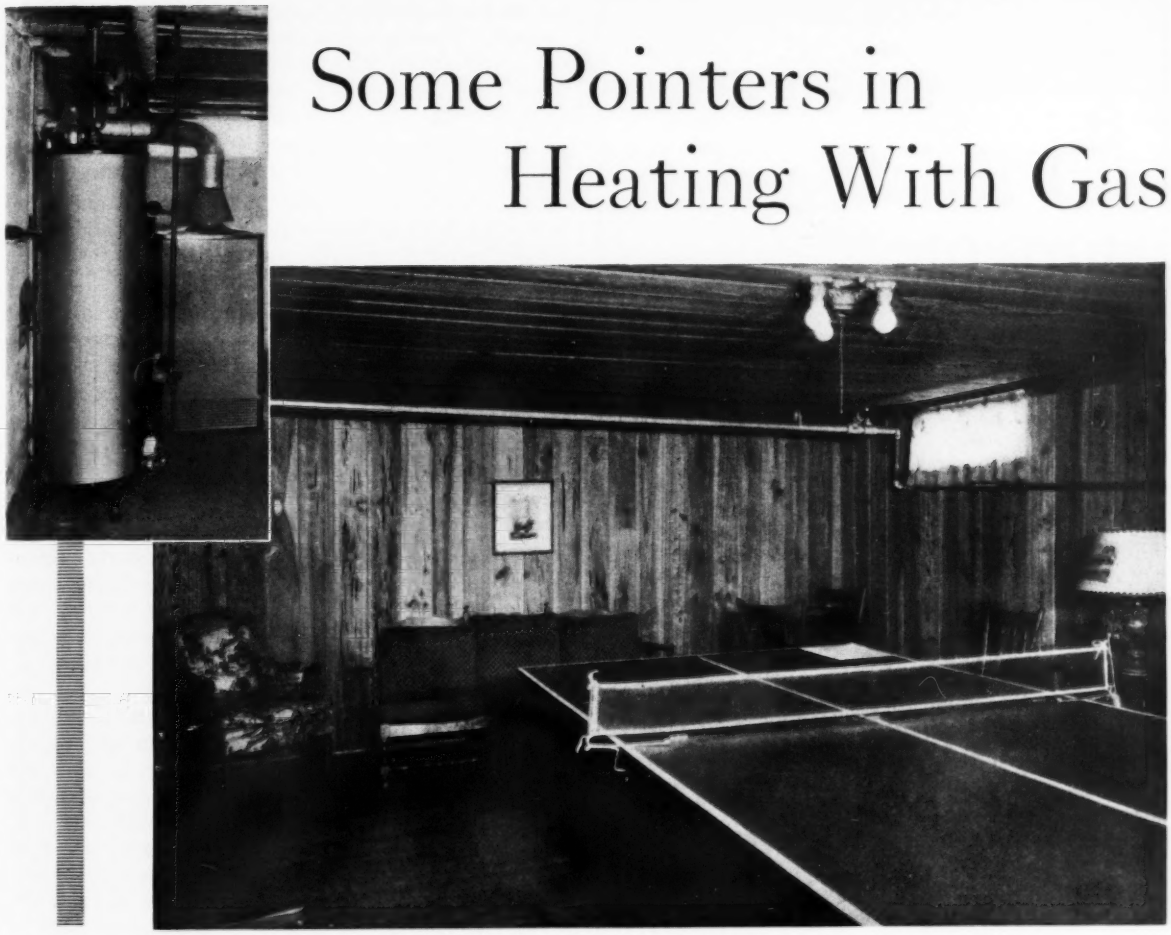
I was tempted to call you, but I decided to see if I could locate the trouble myself. We removed the radiator front and inspected the heating element, but everything seemed satisfactory. I walked across the room to use the telephone and when I got that distance away and looked at the radiator, it seemed to me that the heating element was pitched the wrong way, with the supply end lower than the return. We immediately checked it with a level and found the supply end to be more than ½-in. low, so we regraded it. When we turned on the steam again, this radiator worked perfectly. Now the whole job heats so evenly and quietly that Mr. Harris is telling the whole town what a fine heating system he has.

Yours very truly,

J. W. Davies.

Condensate would collect on the supply side of the plate and interrupt the flow of steam

Some Pointers in Heating With Gas



The above photographs tell very forcefully what is possible by way of making attractive basements when automatic heating equipment and methods are employed

By F. S. ROCHE

THE report of the House Heating Committee of the American Gas Association, which was presented at the annual convention of the association in October, contains statistical data as to the number of gas-fired systems in use. The data show that the number of gas-fired central heating systems increased 30.64 per cent from July 1, 1930 to July 1, 1931.

There are many reasons why the heating contractor should be interested in gas house heating. In part, it is replacement work, providing entrance for the contractor into his customer's home where otherwise he probably would not be called upon for major work for many years.

In making up heating surveys where gas heating is contemplated there is really nothing different from what is required in figuring jobs for any other type of heat. The method most recommended is of course an accurate calculation of heat loss.

In regard to the selection of the proper size of gas-fired boiler, after the total amount of radiation has been determined, two items must necessarily be added. First, an allowance for the radiation loss from mains, risers, and returns must be made, as the total area so exposed amounts to a considerable percentage of the total installed radiation. This approximate relation to the radiation ranges from 15 per cent to 30 per cent. In customary practice an allowance of 25 per cent is added to the total radiation. Second, an allowance for quick starting under thermostatic control must be considered. This allowance is necessary in order that the time required to raise the temperature to the designated point when the building is cold, will not be too great. For this purpose 25 per cent of the total calculated boiler load should be added.

Where selection charts are available for the boiler in question and where the amount of radiation installed

In addition to giving information on some of the fundamentals of heating homes with gas, this article indicates to a degree what the gas heating field offers the contractor

AUTOMATIC HEAT SECTION

this sort of information

• These pages of AUTOMATIC HEAT are a sample of the sort of information that you'll find in every issue of this important new editorial service of DOMESTIC ENGINEERING. • How other contractors are making oil burners, stokers, gas heat and their accessories pay them handsome profits, how these contractors and leading engineers solve technical problems . . . these are a few of the subjects that AUTOMATIC HEAT touches upon in every issue. • Read this section regularly. Keep posted on this sort of information. Write us about your problems.

AUTOMATIC HEAT
in
Domestic Engineering
1900 Prairie Ave. Chicago, Ill.

on the job is shown, the size of the boiler can be read directly. These selection charts check very closely with the figures shown below.

On steam jobs up to an installed radiation of 500 sq. ft., or on water jobs up to an installed radiation of 800 sq. ft. a factor of 56 per cent is added which gives the required minimum rating of the boiler to be used.

On steam jobs from 500 to 1,000 sq. ft. and water jobs from 800 to 1,600 sq. ft. the actual radiation is increased by the factor of 50 per cent to obtain the correct minimum gas boiler rating.

On steam jobs from 1,000 sq. ft. of radiation and up and on water jobs above 1,600 sq. ft. the factor used is from 45 per cent down to 40 per cent to secure the rating which generally is known as the A. G. A. rating.

When a product carries an A. G. A. rating it means the manufacturer has submitted it to the American Gas Association Laboratory for tests to demonstrate that it meets their minimum safety and performance requirements and that it has met such requirements.

Gas heating installations, of course, to give the greatest possible economy and satisfaction with uniform operation must be equipped with full automatic control. The contractor has available for his installations very excellent gas heating equipment, for use on steam and hot water jobs. It is just as important that he use the same judgment in selecting automatic controls and in applying them to the particular job that he does in selecting the boiler itself. In the case of equipment of the air conditioning type great care should be used in the location of the controls when figuring and installing such jobs.

In regard to gas conversion burners, some gas companies encourage the use of these conversion burners for spring and fall duty which is a very desirable unit for the customers in sections where attractive rates are not in effect and where owners feel they cannot afford to burn gas during the entire heating season.

The heating contractor should not overlook the field for small direct fired gas heating units for use as auxiliary to the present heating system whatever type it may be. There are many types of auxiliary heaters on the market including gas steam radiators, the direct fired cabinet heaters and radiant heaters.

One of the best fields for gas steam radiators in auxiliary heating is the detached room and small retail stores which are too small for a boiler. Another condition is the room which is hard to heat.

In promoting his gas heating business, the heating contractor should be fully informed as to the many ways in which the home owner can secure additional economies in heating his home. He should be able to recommend a satisfactory make of weather stripping and should also be fully informed as to the approximate economies which may be secured by the liberal use of the different types of insulation which may be applied in the exterior walls and under the roof surface. There are many instances throughout the country where by the liberal use of insulating materials the home owner has cut his gas heating costs to such an extent that he has been able to pay for the insulation within three or four years out of the savings of his annual heating bill.

In this regard, interesting and informative figures were presented at the President's Conference on Home

Gas is used to heat this small suburban home. Its basement is shown on the first page of this article

Building and Home Ownership which was held recently in Washington. It was pointed out that the value of insulation or weatherstripping a home, as far as the cost of heating is concerned, depends upon the amount that can be saved in the way of interest and depreciation on the cost of the heating systems, plus the saving in the cost of fuel, as compared with the interests on the added cost of the insulation or/and weatherstripping. The heat losses from the average home, without insulation or weatherstrips, is divided into about 35 per cent through walls, 20 per cent through ceilings and roofs, 20 per cent through glass and 25 per cent through air leakage. Of these losses about half of the loss through walls, ceilings and roofs can be prevented by good insulation and about 75 per cent of the losses through air leakage can be prevented by good weatherstripping.

EFFECT OF BUILDING INSULATION AND WEATHERSTRIPPING

This means that the preventable losses, based on the amount of fuel required for the same house without insulation or weatherstrips, are as follows:

1. Through walls by insulation.....15 to 20%
2. Through roofs by insulation..... 5 to 10%
3. Through air leakage by weatherstripping..15 to 20%
4. Total by insulation and weatherstrips.....35 to 50%

Good insulation in the colder climates will save about 30 per cent of the cost of the heating system and from 20 to 30 per cent of the cost of fuel. In an average size room house the added cost of insulation for walls and roof will amount to about $450, the saving in cost of the heating system will be about $225 and the yearly saving in fuel will be about $45. These conditions vary with climatic conditions, so that in the milder climates the saving in cost of the heating system may amount to not over $100 and the saving in fuel to less than $10 per year. These figures are based on wood construction and hot water heat. The saving in the cost of the heating system will vary as the comparative cost of different types varies.

In all instances of insulation it should be remembered that the substitution of many of the ½-in. commercial insulations for plaster base instead of wood lath and for sheathing instead of wood does not constitute the kind of insulation referred to above.

Also, masonry walls up to 12-in. thick, while more durable and more costly than wood, require better insulation.

Heavier masonry walls may require the same or even less insulations than wood walls and in addition may produce much warmer conditions in winter and cooler conditions in summer on account of their added capacity for heat, which, by causing a lag in the time of transmission, will prevent some of the heat getting out in winter or in summer except during protracted periods of either hot or cold weather.

In addition to the economic consideration, good insulation tends to prevent cold walls which produce a disagreeable sense of chilliness to persons near them although the surrounding air within the room may otherwise be at the comfort temperature. It also tends to produce more uniform temperature between floor and ceiling, to prevent cold floors, and air leakage and disagreeable drafts. In the summer, it tends to prevent sweating of walls and excessive air change or replacement of the conditioned air where cooling is employed.

Generally speaking, flexible and blanket forms of house insulation have high insulating values, but some types may be subject to deterioration or infestation.

WEATHERSTRIPPING COST PAID FOR BY SAVING

In the colder climates the cost of weatherstripping is usually paid for by the reduction in the cost of the heating system and a saving in fuel of about 20 per cent of this amount is made per year. This condition varies, according to climatic conditions, so that in the warmer districts the saving in the cost of the heating system reduces to about 25 per cent of the cost of weatherstrips and the saving in fuel to about 5 per cent. Weatherstrips tend to prevent disagreeable drafts and cold floors in winter and to prevent excessive air change where summer time cooling is employed.

The Public Is Going to Have Automatic Heat, Whether It Be Oil, Gas or Coal

AND the natural source of supply and information is the heating dealer, the dealer who installs the heating equipment in the home or apartment.

He is the man who understands heating, knows what to recommend for it in the way of automatic heat. He understands combustion. He knows fuel—and he knows automatic heat better than any other type of retailer.

He serves the public in every other heating requirement and he is serving it with oil burners, stokers, gas heat and their accessories. He is serving efficiently, faithfully, effectively.

He is a part of the community he is established in; he is there not only to sell but to keep sold, the equipment he handles.

He is faithful to his customers and to his manufacturers. He selects only those things to sell which are *right,* which are going to serve as well as he serves.

When he makes a selection, it is only after careful investigation of the product selected. Whether that product is an oil burner, a stoker, some type of gas heat or accessory to any of these or whether it is a combination of any or all of these, they will be right.

The product or products thus selected become a part of the heating dealer's business. He builds with it or with them and because they are right, because they will serve and because he will see to it that they *do* serve, they become accepted by home and apartment owners.

The automatic heat dealer is the biggest selling factor for oil burners, stokers, gas heat and their accessories. Because he is in position to serve the home owners in his community not temporarily but permanently.

SLASH MECHANICS' WAGES TO HELP CONSTRUCTION WORK

125,000 Union Workmen in Chicago Take 20% Reduction

More than 125,000 Chicago building mechanics have volunteered to take a cut of 20 per cent in the union pay scale for one year, beginning March 1. This is in line with wage reductions that have been made in various sections of the country in an attempt to stimulate construction activity.

New York City also is looking toward adjustment of union wage scales. F. W. Dodge Corp. points out that "in a growing number of localities the question of building wage adjustments is being squarely faced. In fact, in about 15 cities of 100,000 or more inhabitants wage adjustments have already been amicably effected."

Under the new scale the hourly wage rate for plumbers and steamfitters is reduced from $1.70 to $1.36. The Plumbing Contractors' Association of Chicago participated in the successful negotiations.

Members of the Chicago arbitration board, composed of the Chicago Building Trades council and organizations affiliated with the Building Construction Employers' Association, after ratifying the pact, issued a statement in which, after praising the co-operative attitude of labor leaders, they said:

"We feel confident that the wage adjustment will unloosen the log jam that has gripped local construction work." The conferees added that approximately $150,000,000 of new construction in the Chicago area was put aside in 1930 and 1931 because of high building costs and difficulties in financing. They predicted that with this new scale in effect a large part of this contemplated work would be thawed out.

WISCONSIN BOARD MEETS

The board of directors of the Wisconsin Master Plumbers' Association met on February 16 in the offices of the Milwaukee Master Plumbers' Association at the Builders' Exchange, at which time plans were made for the ensuing year's program. In the evening the group gathered to present a gift to Lewis R. Friend, retiring state president.

COURT FORBIDS SALE OF GAS APPLIANCES BY UTILITY

State Granted Injunction in Suit Against San Antonio Gas Co.

A decision of far-reaching significance, which may bar all utility companies in Texas from selling gas and electric appliances, was won in district court in Austin, Tex., by Attorney General James V. Allred in his suit against the San Antonio Public Service Co.

The state was granted an injunction to restrain the company from dealing in appliances. Since virtually every utility operating in Texas is engaged in the appliance business, the decision, if upheld by higher courts, will restrict these companies to the sole function of selling gas and electric power. It is expected that the company will appeal the decision, and that the attorney general will file suits against other utility companies.

The state contended that the charter of the utility gave it authority only for selling power, and that the sale of appliances was a violation of its corporate power.

COMMISSION PUTS O. K. ON UTILITY MERCHANDISING

The New York State Public Service Commission has announced that it finds no reason at the moment for prohibiting gas and electric utility companies from selling appliances. The decision was reached following a series of hearings on the question.

CALIFORNIA STATE ASSOCIATION SETS DATES FOR ANNUAL CONVENTION

The State Association of Master Plumbers of California will hold its annual convention this year in Oakland, Calif., May 23 to 26, according to an announcement by John M. La Dieu of Los Angeles, executive secretary of the association. This will be the organization's 31st annual meeting. Hotel headquarters have not as yet been selected. J. V. Young, of San Francisco

is president of the state association, and J. D. Speer of Santa Barbara is vice president.

Harry G. Newman of Oakland is directing chairman of the general convention committee. Other committee chairmen are: W. H. Picard, William D. Evans, Arthur Johnson, L. J. Kruse, W. H. Graham, H. S. Salisbury, Robert Duncan, Jr., D. W. Durant, E. O. Dryer, Carl J. Doell, John W. Rankin, N. J. Previati, J. A. Fazio, J. B. Morse, Frank M. Cooke and Harry Le Gassick.

VIRGINIA MASTER PLUMBERS PREPARE FOR ANNUAL CONVENTION

The annual convention of the Virginia Associated Plumbing and Heating Contractors will be held this year at Alexandria, Va., on June 2 and 3. Convention headquarters will be at the George Mason hotel, and it is planned to use the auditorium in a nearby building for the sessions.

The Arlington County Master Plumbers Association has appointed a committee to handle arrangements for the convention, with E. H. Birch of Clarendon as chairman. E. H. Harris of Richmond, state president, and R. H. Griffin, also of Richmond, executive secretary, are serving on the committee in an advisory capacity. Alexandria is just across the Potomac River from Washington, D. C.

BOSTON H. & P. CONTRACTORS ELECT OFFICERS AT ANNUAL MEETING

Edmund A. Dusossoit was re-elected president of the Heating and Piping Contractors Boston Association at its annual meeting held recently at the Engineers club in Boston, Mass. Thomas A. Ridder continues as vice president nad Maurice E. Chase as treasurer. Walter H. Oleson was elected clerk and the directors are Joseph F. Dwyer, Louis McMurrer, Thomas O'Callaghan and H. E. Whitten.

The standards committee is also headed by Mr. Dusossoit and includes L. R. Stetson and E. C. Whittaker. The trades relations committee is made up of Mr. Chase, John Downey and Mr. Whitten. The examining board is headed by Edgar Shaw, and includes E. S. Stubbs and James P. Sullivan. The welfare committee, headed by Harry E. Barber, consists also of R. B. Crocker and Mr. Shaw, with Peter J. McMurrer and Joseph E. Hayes as substitutes.

Mr. O'Callaghan heads the legislative committee, with Michael Needle and Herbert A. Snow as associates. The nominating committee is made up of Frank A. Merrill, Mr. Snow and I. D. McLean. The auditing committee has Mr. Ridder as chairman, and the other members are William T. Smallman and Peter J. McMurrer.

The election was the final item of a brief business session which followed an excellent dinner and preceded the entertainment part of the evening. During the business session reports were made by the retiring president, treasurer and auditing committee and by Manager Oleson. Mr. Oleson, in his report, reviewed the work of the association during the previous 12 months, calling attention particularly to the accomplishments of the board of directors, trades relations committee and the welfare committee as well as the work done by various sub-committees. He pointed out that in spite of the reduction in volume over past years, members of the association had continued to secure the major portion of the business in the metropolitan Boston area and expressed the opinion that this could be repeated in 1932 provided the members continue their active co-operation.

Vice President Ridder was chairman of the committee which had the affair in charge.

P. & H. CONTRACTORS PARTICIPATE IN MUSKOGEE, OKLA., REMODELING CAMPAIGN

A movement to remodel all old buildings has been started in Muskogee, Okla., under the sponsorship of the Real Estate Board of that city. Among the plumbing and heating contracting firms in the city who are actively participating in the campaign are A. T. Hogle, Duff Plumbing and Heating Co., and the O'Connor Co.

All three of these firms have ordered a supply of DOMESTIC ENGINEERING'S "Spend for the Home in 1932" posters and stickers for use in conjunction with the remodeling campaign.

MAINE STATE CONVENTION WILL BE HELD MARCH 15-16

The Maine State Master Plumbers Association will hold its 1932 annual convention in Portland, Maine, on March 15 and 16, according to word just received from J. T. Kerrigan of Lewiston, president of the association. Headquarters for the convention will be at the Falmouth Hotel.

E. N. Cunningham of Portland, vice president of the state association, is chairman of the convention committee. Other members of the committee are Iver Iverson, a member of the state board of directors, and C. Madsen, both of Portland.

QUEENS MASTERS HOLD PARTY

Approximately 550 persons turned out for the recent annual ball of the Association of Master Plumbers of Queens, N. Y. The committee, of which Joseph R. Mittasch was chairman, selected the Triangle ballroom at Richmond Hill for the scene of the festivities, and also arranged for the excellent music. J. F. Rogers, T. F. Whalen, and J. S. McNamara served as the reception committee, while the floor and entertainment arrangements were handled by J. Stockinger, Jr., with the assistance of the district representatives. J. Zimmerman, president of the Queens association, handled the souvenirs and programs.

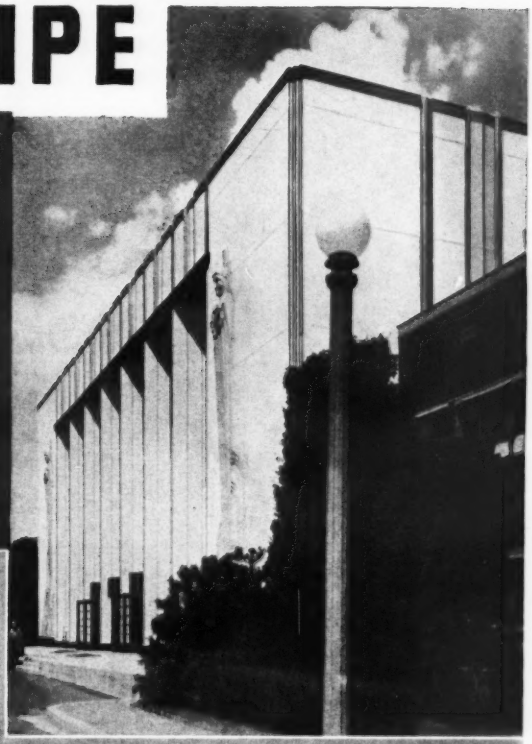
UNIVERSITY EXTENSION PLUMBING COURSE NOW READY

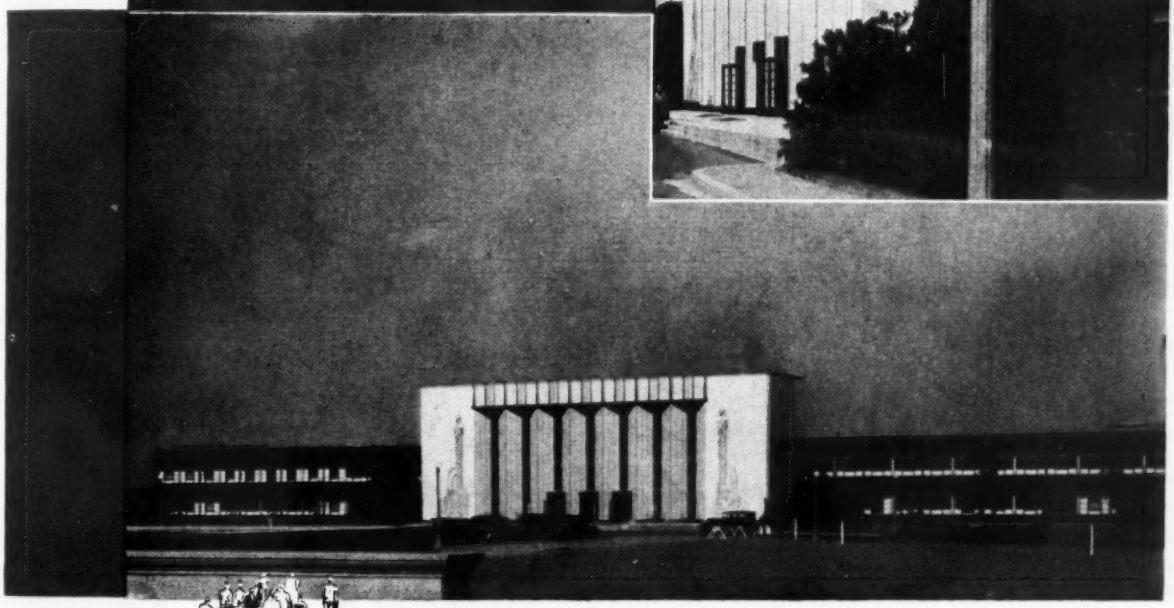
For the past several years the University of Wisconsin extension division has been developing a correspondence course of instruction called, "Principles and Practices of Plumbing." It is intended primarily for those already connected with the plumbing trade such as apprentices, journeymen, masters, plumbing inspectors, architects and engineers.

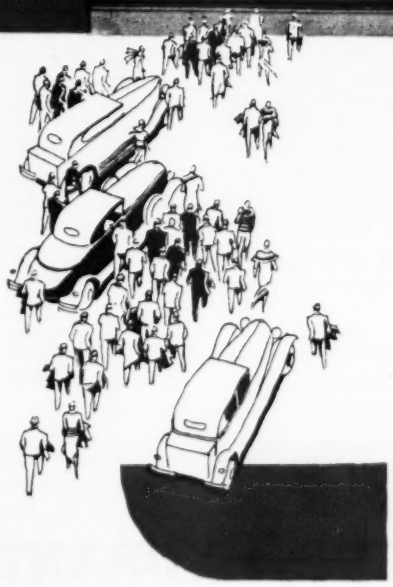
The course is based on the Wisconsin State Plumbing Code and is in conformity with the so-called "Hoover Code," otherwise known as the "Recom-

REPUBLIC STEEL PIPE

TO HEAT WORLD'S FAIR BUILDING





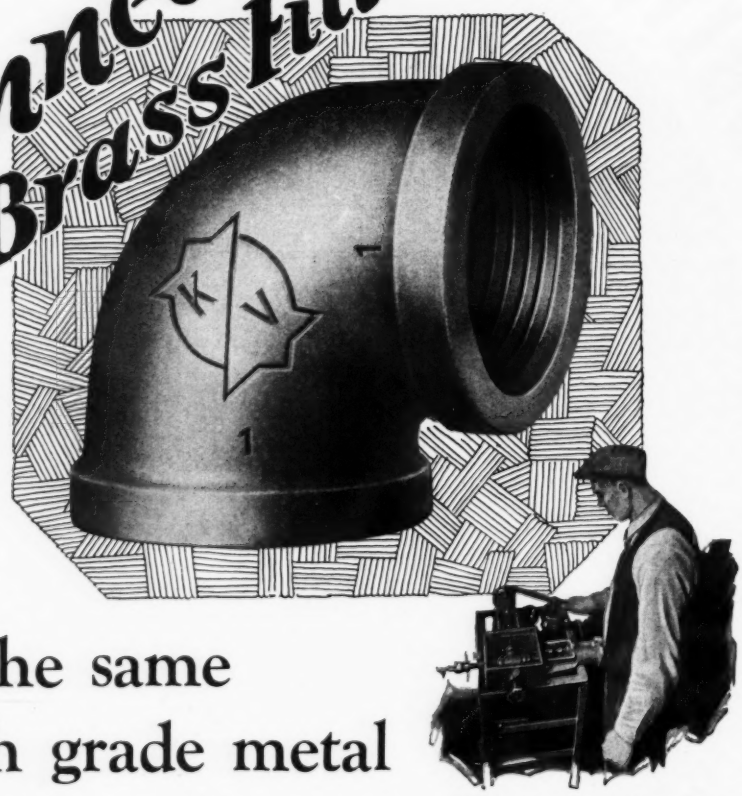


EVERYTHING new in the realms of science and industry will be on proud display when the Century of Progress Centennial opens in Chicago in 1933. Yet the heating of the Administration Building will depend not upon anything new, but upon reliable, time-tried Republic Steel Pipe, installed by E. J. McDonough, Contractor, under the direction of the World's Fair Architectural Commission—Edward H. Bennett, Hubert Burnham and John A. Holabird.

REPUBLIC STEEL CORPORATION

GENERAL OFFICES YOUNGSTOWN, OHIO

Kennedy Brass Fittings



Made of the same high grade metal as in Kennedy Bronze Valves

KENNEDY Bronze Fittings are not made of brass but of true *bronze*—the same tough red metal that is used in Kennedy Bronze Valves. This metal is stronger and more uniform than brass and makes better looking and more satisfactory pipe fitting jobs. Furthermore, you obtain these benefits at no extra cost, for Kennedy Fittings are sold at standard market prices—the same as you pay for ordinary brass fittings. Every Kennedy Brass or Bronze Fitting is individually tested by air pressure under water besides being inspected before and after machining, and their precision machine work assures clean-cut accurately aligned threading.

Try Kennedy Fittings on your next job and note how they speed up pipe fitting time and help to assure creditable, profitable work.

. The Kennedy Valve Mfg. Co., Elmira, N. Y.

Branches and Warehouses in Principal Cities

Kennedy Products include bronze and iron body gate, globe, angle and check valves for every requirement in the plumbing and heating industry, complete lines of standard malleable iron black and galvanized screwed fittings and brass or bronze screwed fittings, and the Kennedy-Pennie Back-Water and Sewer-Gas Valve for sealing the waste pipe from residences and other types of buildings.

Send for Catalogue

KENNEDY

VALVES-PIPE FITTINGS-FIRE HYDRANTS

mended Minimum Requirements for Plumbing," issued by the U. S. Department of Commerce.

The extension division's new course was prepared in co-operation with Frank R. King, state plumbing and domestic sanitary engineer, and his associates.

The instructional material will be in the form of twenty mimeographed assignments. The cost, which will include text material, is sixteen dollars. To non-residents the cost is twenty dollars.

Plumbers desiring to enroll or to ask for detailed information are directed to address communications: Department of Extension Teaching, University of Wisconsin Extension Division, Madison, Wisconsin.

NEW YORK GROUP HOLDS STAG PARTY

About eighty-five men were present at the stag party given at the Knights of Columbus hotel, New York City, on February 4 by the New York Plumbing and Heating Golf Association, of which Morris Jarcho is president. John Weil made complete arrangements for the party and entertainment.

MILWAUKEE H. & P. CONTRACTORS ELECT OFFICERS

The Heating & Piping Contractors Milwaukee Association, at its annual meeting held recently in the association offices, elected the following officers for the ensuing year:

Allen Pflugradt, president; Ben Wenninger, vice president; Frank A. Mueller, secretary; and John S. Jung, treasurer. Mr. Mueller and Mr. Jung were re-elected.

Three directors were elected: George Stoehr, for a term of three years; Harry Dailey, for a term of two years; and B. C. Freeman, for a term of one year. The board of directors met on February 10 to map out a program for the year.

MANHATTAN ASSOCIATION PLANS STAG PARTY

The Manhattan Association of Master Plumbers will hold a beef steak dinner and stag party on March 3 at the Building Trades Club, New York City. F. Kalisch and E. Berg are in charge of the arrangements.

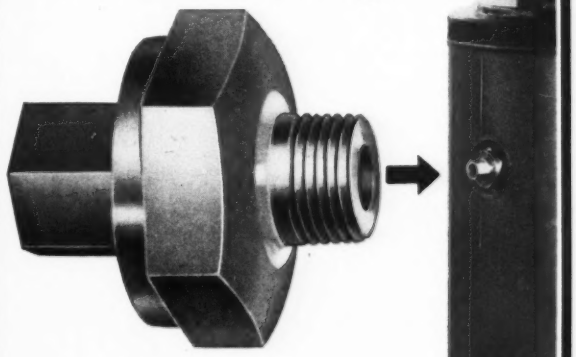
JERSEY CITY MASTERS HOLD BANQUET

The Master Plumbers Association of Jersey City, N. J., held its annual banquet at the Hotel Plaza, in that city, on February 4. More than 150 members and guests were in attendance. Among the visitors was Mrs. J. M. Heidweiler of Trenton, president of the New Jersey State Women's Auxiliary.

James T. Brennan, secretary of the association, acted as toastmaster and ruled that the order of the evening would be one of a family gathering attitude rather than formal speech making. Several excellent vaudeville acts were presented and dancing was enjoyed both between courses during the dinner and until a late hour.

The committee in charge consisted of Louis Komoski, chairman, E. P. Ingram, George Cooper, J. J. Corcoran, R. Entwistle, J. T. Brennan, J. A. Ward, William Bailey, H. P. Sharrock, L. Cull, H. Wasserman, Jr., A. A. Marzullo and J. Alfred Freedman.

It's Self-Closing!

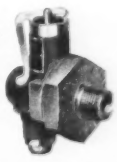


The KLIXON Temperature Relief Valve . . . Costs Little— Adds Much

INSIST on having a KLIXON temperature relief valve on every automatic heater you sell. It's self-closing. You protect yourself from service calls. You protect your customer from trouble and expense. The KLIXON drains off overheated water only, then closes. It has positive snap action, costs little. Write for names of heater manufacturers who use them—they're the leaders.

Spencer Thermostat Co.
Attleboro, Mass.

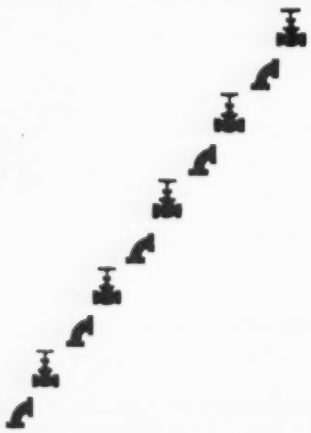
Combined Pressure and temperature relief valves are available, with or without the release handle. Send for catalog and price sheet.



KLIXON

CO-OPERATION

A new year lies ahead in which people will buy as they have always bought in the past. Only they will buy more cannily . . . think more of price . . . demand more of quality. Crane Co. offers you the way to approach such shrewd and demanding prospects successfully. It has revised the price of every unit in its complete plumbing line to 1913 levels. Go to your Crane Branch and learn just what these new low prices are. They offer you the answer to home owners and builders who say, "We're waiting for prices to come down."



CRANE

CRANE CO., GENERAL OFFICES: 836 S. MICHIGAN AVENUE, CHICAGO

NEW YORK: 23 W. 44TH STREET

Branches and Sales Offices in One Hundred and Ninety Cities

VALVES FITTINGS

HOLD ANNUAL BANQUET

The annual banquet of the Master Plumbers' Association of the Oranges was held Thursday evening, February 4, at Walnut hall, East Orange, N. J. President George Buggeln made a short welcoming address and introduced the several distinguished guests. Among these were George H. Werner of Orange, national director and New Jersey state treasurer; James Lewis, first vice president of the New Jersey state association, and George L. Bird, second vice president of the New Jersey association; Mathilda Berg, president of the Women's Auxiliary of the Oranges, and Mrs. J. M. Heidweiler of Trenton, president of the New Jersey state auxiliary. The new officers of the Oranges association were also introduced, Adolph Trapper, vice president; Willard N. Durr, secretary, and F. Boggart, treasurer.

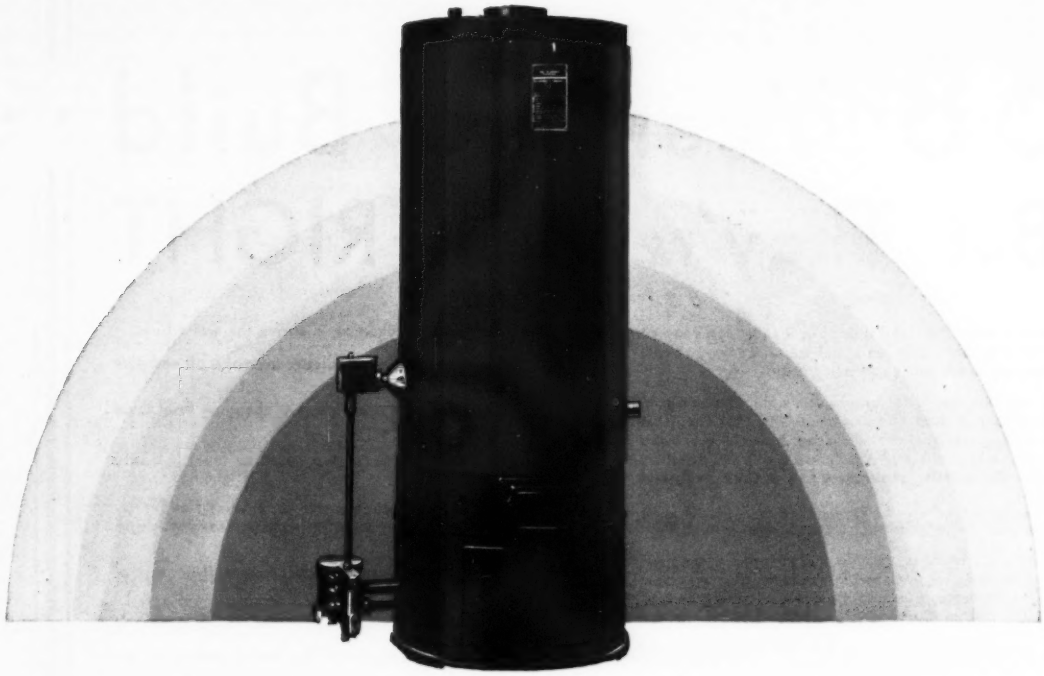
In one corner of the room a mechanical device worked steadily throughout the evening. It was a representation of "old man depression" being hit on the head by a plumber. Rogers-Ebert & Co. arranged for the talent, which consisted of some superlative vaudeville acts. Dancing went on until the early morning hours.

CITY OFFICIALS SUPPORT PHILADELPHIA MASTER PLUMBERS' ASSOCIATION

That the city officials of Philadelphia, Pa., are fully cognizant of the importance of the registered master plumbers to the health of the community is evidenced by the manner in which they are co-operating with the Philadelphia Master Plumbers Association. The latest example of their interest in the association and its members was had at the recent Ladies' Night affair of the organization which was attended by many civic leaders, including Harry T. Baxter, secretary to the Hon. J. Hampton Moore, mayor of Philadelphia; Howard Smith, former councilman; J. H. Hagendorn, director of supplies and purchases, and his assistant, William W. Morgan; Herbert Packer, chief of the bureau of sanitation and housing; and Judge Edward F. Roberts, a member of the master plumbers' association.

Other prominent guests were P. W. Donoghue and J. Preston Perham, both of Boston, Mass., president and secretary, respectively, of the National Association of Master Plumbers. Maney J. Feeney, president of the Philadelphia association, was toastmaster of the evening. The party was held at McCallister's auditorium on January 27.

Mr. Donoghue complimented the Philadelphia association for the leaders that it has developed, and described in some detail the activities of the National association. He referred to the forthcoming national convention in New York City and requested those present to lend it their support. Mr. Perham also spoke briefly on association work. Joseph G. Hildebrand, secretary-manager of the Plumbing and Heating Industries Bureau, described the work that is being done by that organization. Each of the city officials present was called upon for a few remarks. Mr. Hagendorn and Mr. Morgan both described various phases of the functions of their department and requested the co-operation of the association. Judge Roberts entertained with several stories of his experience on the bench. Mr. Packer also expressed the desire of his department to co-operate in every way



Today they're interested in Economy!

Sell Your Customers Hot Water That Costs Only 5 Cents a Week

Many home-owners are seriously questioning the economy of old-fashioned water-heating equipment. They've heard that oil can be made to produce far more hot water at less cost. They want these savings! That's why MW Water Heater Dealers have been earning good profits. That's why we believe you'll be interested.

Here, for instance, are some comparisons. The MW Heater, using No. 1 Fuel Oil, will produce 1280 gallons of hot water for $1—manufactured gas, 484 gallons; bottled gas, 274 gallons, and electricity only 171 gallons. But, that is only half the story! Compared with old-fashioned oil-burners, this modern "matched" unit, in which all parts are designed for one another, gets more B.T.U.'s from the oil and transmits this heat more efficiently to the water.

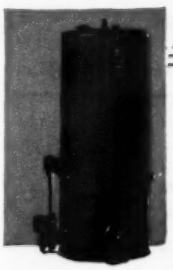
First of all, the Burner is an integral "built-in" part of the Boiler. The fire is virtually put into the water instead of being applied only against the bottom of the heater. How? By being led up through a series of steel flues which pierce the boiler water from top to bottom. Heat is not only transmitted instantly to the water, but it is sealed in there by special insulation of the outer casing.

The MW Heater is Listed as Standard by The Underwriters' Laboratories. It is safe, automatically controlled by thermostat. A compelling sales product to talk up to home-owners.

AUTOMATIC **MW** OIL-BURNING

WATER HEATER

(manufactured by MOTOR WHEEL CORPORATION, Heater Division, Lansing, Mich.)

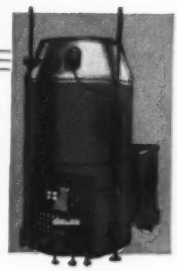


MW Boiler Unit

The MW Oil-Burning Unit is selling like hot-cakes. It gets maximum heat from the fuel and places it instantly into contact with the boiler water. Includes Burner, Boiler, Automatic Thermostat. Listed as Standard by The Underwriters' Laboratories. Is safe, economical, and easy to sell. Get the full facts while the season is open.

MW "Weather Control" Unit

For those better homes in your community, this modern unit finds a ready market. Has an all-year-round appeal; it supplies healthful, warm, humidified air through every room in Winter; and circulates cooling, refreshing air in Summer. Includes Oil Burner, all-steel Combustion Chamber, Thermostatic Control, Blower and Humidifier. Listed as Standard by Underwriters' Laboratories.



Ask about our attractive franchise proposition for dealers

58 Years to Build . . .
But They're Built RIGHT

Fifty-eight years is a long time, but it's not too long to build a good feeder. You can't make a satisfactory feeder without experience—and experience requires time.

Many of the foremost engineers and mechanics in America have put their genius into Watts Feeders. That they are the greatest advance in the history of feeders we think you will admit if you compare the Watts point by point with other makes. Here are a few of their important features:

Non-metallic high-temperature steam disc assures tight seat.

Shock absorbing monel spring protects disc and seat from the excess pressure, bumping and hammering caused by water line fluctuations.

Every vital part can be reached in less than three minutes without disturbing operation of heating system.

Feed and overflow valves are operated by a single bronze rotating shaft, eliminating any sliding friction.

Bronze strainer prevents sediment from getting into Feeder and protects valve seat.

Entire feed valve mechanism is above the water line.

No cold water enters float chamber to cool it off and give a false level.

A special adjustment screw permits changing float level without disconnecting Feeder.

Differential between feed and overflow level is easily adjustable.

Single Feeder can be changed to a Dual Feeder by simply replacing head—no pipe cutting, tearing down job, etc.

Overflow water in Watts Feeders comes from top of boiler, free of sediment.

No stuffing-boxes are used.

Low water cut-off switch can be easily added at any time.

There is a Watts Feeder for every type of oil, gas or coal-fired boiler.

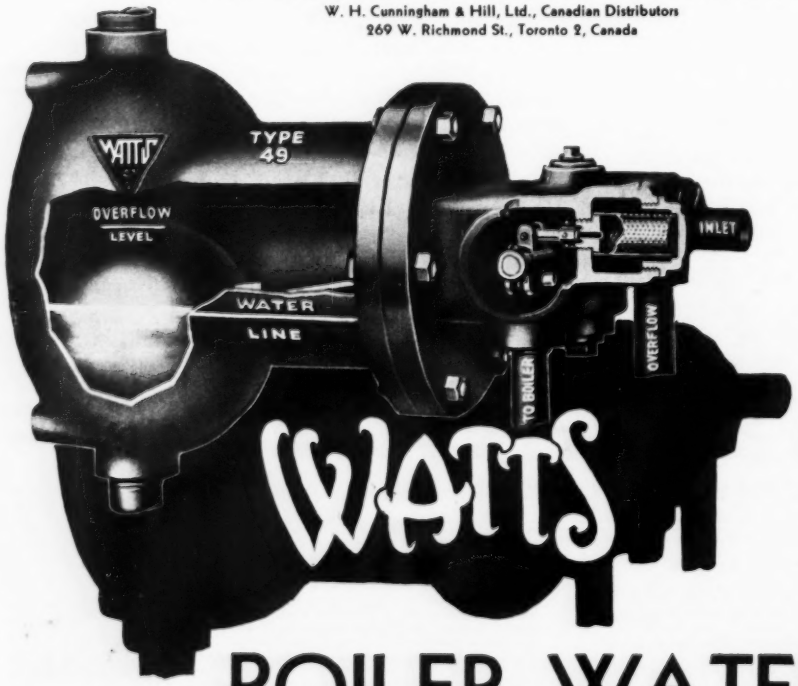
Other important features explained in our catalog. Write for a copy.

WATTS REGULATOR CO.

249 Lowell Street LAWRENCE, MASS.

John G. Kelly, Inc., Distributors, 210 E. 45th St., New York, N. Y.

W. H. Cunningham & Hill, Ltd., Canadian Distributors
269 W. Richmond St., Toronto 2, Canada



Makers of Water and Steam Regulating Devices Since 1874

BOILER WATER FEEDER

with the association. C. W. Wanger, president of the Woodward-Wanger Co., Philadelphia, stressed the value of association work, stating the present business conditions made the association more valuable than ever to the master plumber.

Several acts of vaudeville added to the enjoyment of the evening and later the floor was cleared for dancing. A heckler in the audience, who turned out to be George Mack, Hollywood screen star, created considerable fun by continually interrupting Toastmaster Feeney during his address.

The Ladies' Night committee consisted of the following: George M. Hicks, chairman, Harry L. Stilwell, secretary-treasurer, George Moeller, L. J. Craig, James Soehle, Henry Cramer, Edw. H. Rinear, James Rooney, John J. Nagele, Jr., George F. Uber, Maney J. Feeney, Robt. H. Pflug-Felder, Harold C. Asquith, Anton Jakoby, Charles Rapp, Howard Neilson, J. M. Jerman, Walter Raid, Calvin Doan and Conrad D. Eisemann.

Those on the reception committee were: Wm. Boal, Edw. F. Roberts, Thomas F. Dempsey and George F. Uber.

The floor committee was made up of the following: Wm. H. Beahm, Frank S. Dykes, John F. Seibel, Edw. F. Quaid, Jos. M. McGinnis and Robt. H. Shand.

DEATH OF PETER MENZIES

Peter Menzies, former secretary of the Denver Master Plumbers Association and of the Colorado Society of Sanitary and Heating Engineers, died in Denver, Colo., on January 24. Mr. Menzies was in his 64th year at the time of his death. He was secretary of the Denver association for more than twenty years and was well known in plumbing and heating circles. In recent years he was an instructor of plumbing apprentices in Denver. Funeral services were held from the Consistory Cathedral. Many members of the Denver association were in attendance.

DEATH OF PETER K. CLAYTON

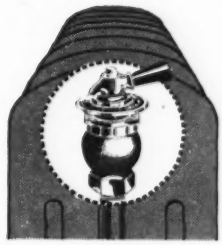
Peter K. Clayton, for many years engaged in the plumbing and heating contracting business on North Western avenue and Homer street, near the intersection of Milwaukee avenue and Western avenue, in Chicago, died at his home in that city on January 30, in his 61st year. His wife, three sons and a daughter survive him.

AN EXPLANATION

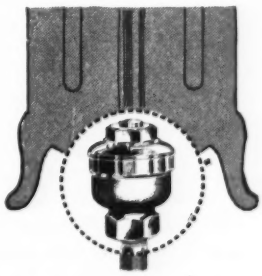
The Automatic Heat article entitled "Experiences in Making Gas Heating Installations," beginning on page 58 of our February 6 issue, was planned originally as three consecutive editorial pages. The caption on the first page reads, "This is an exterior view of the Ohio Bell Telephone Company's building at Dayton, Ohio. It is served by the gas fired job shown on the next page." Reference, of course, was to the next editorial page.

In the final handling, an advertising page was inserted after the first page. This made it appear that the caption referred to the advertising page instead of the next editorial page and its illustration.

. . . . . it's a mighty IMPORTANT one . . .



The strongest argument for using Barnes & Jones return traps is what firms say that have installed them—"practically no replacement of thermal elements." It is the one trap that is made to go on the job and stay there.



30 years of unfailing performance have built 30 years of satisfied users for Barnes & Jones Vapor and Vacuum Systems of Heating. Those That Install Them, Know.

BARNES & JONES INC.

2-20

127 Brookside Avenue, Jamaica Plain, Boston, Mass.

Send, without obligation, your book describing Barnes & Jones Vapor and Vacuum Systems of Heating.

Name.....

Company.....

Street.....City.....

State.....

357

You should have this 32 page catalog

OHIO MASTER PLUMBERS WARNED OF OUTSIDE COMPETITION THREAT

DELEGATES attending the annual convention of the Ohio State Association of Master Plumbers were warned by W. J. Spillane, president of the Central Supply Association, that the plumbing and heating industry is faced with disaster unless steps are taken to effectively combat direct-to-consumer and chain store competition. Mr. Spillane suggested as a remedy a more closely knit scheme of co-operation between established manufacturers, wholesalers and contractors in the industry.

An effort will be made during the coming year to strengthen the local associations throughout the state as it is felt that this will help meet outside competition. The Plumbing and Heating Industries Bureau will be asked to assist in this work.

The convention, which was the 41st annual meeting of the Ohio association, was held in Cincinnati on February 2, 3 and 4.

On the recommendation of Edward B. Kleine of Cincinnati, state president, three additional directors were appointed to the state board, each director to be held personally responsible for the development of association work in his territory.

William A. Schneider of Columbus is the new president of the Ohio state association, succeeding Mr. Kleine. Oliver Hoffman of Akron was elected vice president. Eb Ellen continues as secretary-treasurer. The official delegates to the forthcoming National convention in New York City will be Edward Frank of Cincinnati and Charles F. Seifried of Cleveland.

A number of resolutions were adopted by the delegates. One of these called for an intensive state membership drive, and another one asked for the co-operation of the membership in securing a revised state plumbing code. Senate Bill 97, designed to protect trade marks, was endorsed. Like treatment was accorded a resolution on H. R. Bill 6187, which directs the secretary of the treasury to contract for architectural and engineering services on public buildings. In another resolution, the activities of the Plumbing and Heating Industries Bureau were endorsed. The association went on record in still another resolution as being opposed to the practice of architects of charging plumbing and heating contractors for the use of plans and specifications.

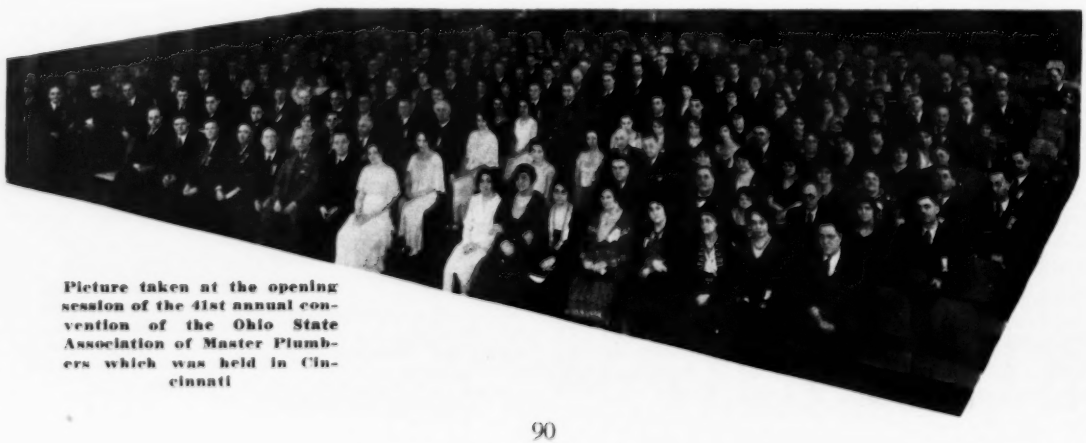
Although recommended for adoption by the state board of directors and the N. A. M. P., the Ohio delegates went on record as unanimously opposed to H. R. Bill 4680. This Bill concerns certain phases of general contractor and sub-contractor relationship.

Another resolution to encounter defeat was one proposing that the state issue one license and bond which would permit the contractor to operate anywhere in the state.

William A. Schneider of Columbus, newly elected state president, and Edward B. Kleine, retiring president

In following issues abstracts will be brought to our readers of the significant features of the principal addresses made at the convention.

On the three-day program were several prominent leaders in the industry, including George H. Drake of Buffalo, N. Y., past president of the National Association of Master Plumbers; Rupert J. Weber of Chicago, National director; Russell G. Creviston, sales promotion manager of Crane Co., Chicago; C.



Picture taken at the opening session of the 41st annual convention of the Ohio State Association of Master Plumbers which was held in Cincinnati

The longest forward step ever made in faucet construction

Patent Pending For Cut-Away view of "E-Z Close", showing the sweeping forward advance in design principles employed in this newer, finer faucet . . .

Basically New Structure
Closes with the Pressure
Smooth, Easy Action
Only Three Working Parts
Complete Renewability
Quiet, Non-Hammering
Finer Performance and Longer Life Assured

REPUBLIC
New "E-Z CLOSE"

HERE is the greatest single advance ever made in faucet construction. New and basically different principles make far finer performance, far longer service-life a certainty. Easy to operate and easy to maintain, "E-Z Close" is the easiest-to-sell faucet ever built.

Show this new construction and you command the instant interest of owners and architects. Demonstrate the surprisingly smooth, easy action and you change interest to desire. Point out the host of features that assure quiet action, ease of maintenance, multiplied years of service, and you have won a customer.

You will want to know more about "E-Z Close" . . . about the all-new structure; the rubber-to-metal seal; the insert that cannot rotate; the built-in jack that makes removal of corroded inserts easy; the "two-stage closing" non-hammering feature. Your Republic jobber will be glad to demonstrate this newest and finest of faucet constructions to you.

"E-Z Close" is now available in Republic's famous "five-sixty" family of kitchen sink fixtures . . . . at no advance in price over the regular construction. Feature "E-Z Close" kitchen sink fixtures. Demonstrate them to every prospect. You will find "E-Z Close" a certain means to easy sales . . . to greater profits.

THE REPUBLIC BRASS COMPANY
1623 EAST 45th STREET · · CLEVELAND, OHIO

561½, Republic all-metal Kitchen Sink fixture with E-Z Close Construction

REPUBLIC *Brass Goods*

. . . In 1932, more than in previous years, you owe it to yourself to insist on Value.
. . . Jarecki Fittings give EXTRA value in two ways—(1) the careful inspection to which every fitting is subjected; and (2) the reputation which has been carefully maintained for 80 years by the Jarecki organization.
. . . For extra value in 1932, specify Jarecki Fittings.
JARECKI
MANUFACTURING COMPANY
ERIE, PA., U. S. A.

Jarecki-Fittings

THE C-D-S WATERPROOF GASKETS

READY TO USE — NO HEAT REQUIRED

LEAVES NO STAIN ON FLOOR

Use C-D-S WATERPROOF FELT CLOSET BOWL GASKET

THE Peter E. Snow process for waterproofing closet bowl gaskets is available only in the C-D-S Closet Bowl Gasket.

Use C-D-S. It is the gasket that plumbers everywhere have called ideal for setting and re-setting closet bowls.

The illustration shows its simple application. It is completely moisture resisting and does away with the old putty joint.

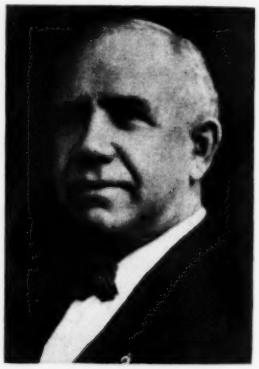
Packed complete with stud bolt gaskets in a handy package. Order a supply from your jobber today.

C-D-S PRODUCTS CORPORATION
Muncie • • • • Indiana

THE C-D-S WATERPROOF GASKETS

W. Wanger, president of Woodward-Wanger Co., Philadelphia; Mr. Spillane, who is sales manager of James B. Clow & Sons, Chicago, and Joseph G. Hildebrand, secretary-manager, Plumbing and Heating Industries Bureau.

Mr. Drake spoke on National association activities and their relationship to present business conditions in the industry. Speaking of the need for improved merchandising methods, Mr. Drake said that plainly marked price tags on merchandise in master plumbers' display rooms will result in increased sales. He further stated that a price tag on merchandise insures a profit on the item.



Edward Frank

Mr. Creviston's subject was salesmanship. He suggested that the master plumber make more personal calls on his prospects, and that he carefully analyze his own business with the view in mind of eliminating poor business practices. Mr. Wanger also spoke on the general subject of salesmanship and offered a number of suggestions as to how the plumbing and heating dealer can improve this phase of his business. Mr. Weber, too, urged the use of price tags by plumbing and heating dealers, and told of the successful use of price tags in his own company.

John J. Vogelpohl

John J. Vogelpohl of Cincinnati, chairman of the National Scholarship Fund, announced that the trust fund now amounts to $137,700, with an additional $9,000 in the bank. He explained how the scholarships are made available to sons of master plumbers. W. E. Eynon of Canton reported for the apprenticeship committee, and Walter Cahill of Akron, chairman of the essay committee, read a paper on utility dealer co-operation.

The following committees were appointed to handle the convention proceedings:

Auditing: Charles Ganger of Cincinnati, U. I. Bott of Canton and Paul Schuler of Hamilton. Resolutions: John J. Vogelpohl of Cincinnati, William Fischer of Columbus and Charles F. Seifried of Cleveland. Credentials: Dan McDermid of Toledo, Walter Eynon of Canton and Martin Rielly of Youngstown. Press: C. A. Arting of Mansfield, H. L. Crockett of Springfield and W. A. Cahill of Akron. Sergeant-at-arms, Alfred Ambrosius of Cincinnati.

Mr. and Mrs. Edward Frank of Cincinnati were general chairmen of the convention committee, which had worked hard for the success of the meeting. Other committee chairmen who contributed to the success of the convention were Mr. Vogelpohl, George Ammon, William C. Tillett, Richard J. Cluxton, William A. Botley, Henry H. Schwarz and Ray J. Hillenbrand.

WISECO

COMBINATION LAVATORY and WASTE FIXTURES

The Standard Of Quality Since 1877

If you want your customers to get the most for their money — sell the WISECO Combination Lavatory and Waste Fixture.

Furnished in either China or All Brass Trim. Long or short spout. Nickle Polished or Chromium Finish.

This fixture will meet your every requirement.

At all leading jobbers.

WISECO TRADE MARK INC.

J. B. WISE, INC., WATERTOWN, N. Y.

NEW YORK · PHILADELPHIA · ATLANTA · DETROIT · CHICAGO · LOS ANGELES · SEATTLE · SAN FRANCISCO

BURKS
SUPER-TURBINE
PUMPS
ONLY ONE MOVING PART

CONDENSATION RETURN UNITS

SERIES 4700

A vapor-proof pump that won't steam-bind!

This pump gobbles up red hot water and "chucks" it back in the heating boiler even against steam pressures up to 100 pounds.

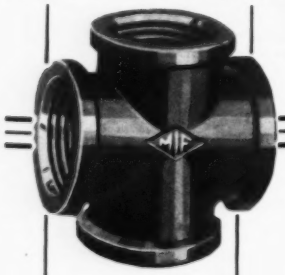
Only one moving part—*but what a part!*

Burk's Super Turbine Pumps simply *had* to be good to gain *acknowledged supremacy* in capacities up to 1000 gallons per hour. It's a *direct - connected, single stage* job, too.

Both new—send for one or both

Condensation Return Bulletin No. 95
Water System Bulletin No. 94-C

DECATUR PUMP COMPANY DECATUR, ILLINOIS



MIF

The M. I. F. Trade Mark on each Fitting is for your protection

MALLEABLE IRON FITTINGS

STANDARD MALLEABLE
EXTRA-HEAVY MALLEABLE
RAILING FITTINGS
PLUGS & BUSHINGS

BRANFORD UNIONS

BRASS TO IRON SEATS
BRANFORD 350* W. P.
BRANFORD JR. 250* W. P.

COPPER TUBE FITTINGS

Malleable Iron Fittings Co.
Branford :: Conn.

MINNESOTA MASTER PLUMBERS WILL PUSH STATE PLUMBING CODE

THE Minnesota Master Plumbers Association will bend every effort between now and the assembly of the state legislature in January, 1933, to pave the way for adoption by the law-making body of a state plumbing code. The need for such a law and the procedure that should be followed to secure its adoption was the principal topic for discussion at the 38th annual convention of the organization in St. Paul on February 1-3.

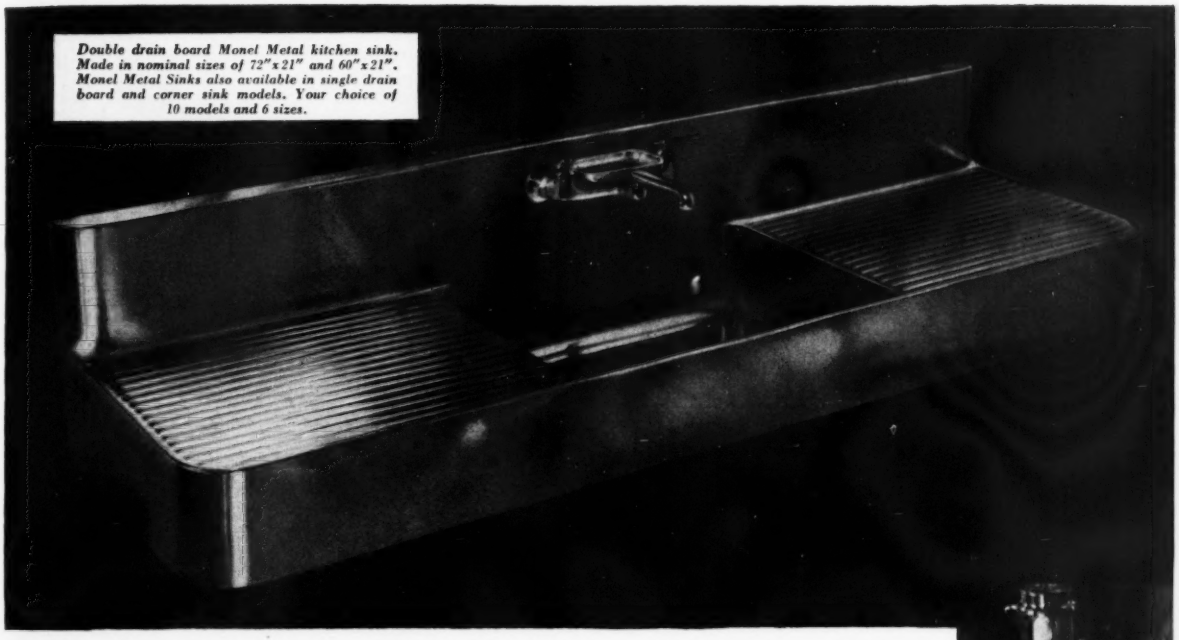
H. Merwin Porter, Minneapolis, newly elected state president

Past efforts to secure the adoption of a plumbing law have been unsuccessful, but during the past year, under the leadership of President Harvey W. Strader of Minneapolis, a new style of attack has been formulated. An intensive membership drive has resulted in a larger roster, and numerous meetings have been held in all parts of the state to acquaint the members with the proposed code and to build up association spirit and morale. In addition, the state has been divided into zones, with a director in charge of each district. With these factors as aids, it is hoped to acquaint the public and the members of the legislature of the need for the law.

Mr. Strader was succeeded to the presidency by H. Merwin Porter of Minneapolis. Mr. Porter served as state president several years ago and also is a former director of the National Association of Master Plumbers. The other officers who were elected are: A. E. Wickworth of St. Paul, first vice president; A. F. Cherne of Eveleth, second vice president; A. E. Lamb of Minneapolis, secretary; and F. C. Stiller of Minneapolis, treasurer.

The state directors are Theodore Pease of Redwood Falls, Dean Northrop of Mankota, O. Strand of Benson, Henry Hanson of Virginia, A. M. Wintheiser of Minneapolis, Martin Wold of Duluth, Carl Bruno of Cloquet, Charles Olson of Winona, Rudolph Sudheimer of St. Paul, and George Johnstone of Minneapolis.

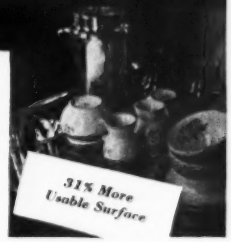
George F. Reeke of Green Bay, Wis., a director of the National Association of Master Plumbers, delivered a clear cut statement of the activities of the national organization. Norman J. Radder of the Plumbing and Heating Industries Bureau, Chicago, explained the objects of the organization he represents. T. E. Cunningham, president of the State Association of Pipe Trade



Double drain board Monel Metal kitchen sink. Made in nominal sizes of 72" x 21" and 60" x 21". Monel Metal Sinks also available in single drain board and corner sink models. Your choice of 10 models and 6 sizes.

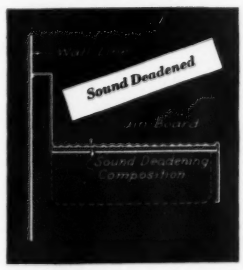
No sink but a STANDARDIZED MONEL METAL SINK

gives you talking points like these



● Compare the new standardized Monel Metal Sink, point for point, with any other sink on the market ... and you'll know at once that it pays to push these modern sinks, because they give you these outstanding selling advantages!

1. Rich, lustrous beauty ... with a satiny, glass-smooth surface that is easy to clean and keep clean.
2. Neutral, silver tone that blends with any kitchen color scheme and eliminates troublesome color problems in stocking sinks.
3. Rust-proof ... highly resistant to corrosion ... strong as steel.
4. Solid metal clear through, with no coating to chip, crack or wear off. Less danger of damage during installation.
5. 10 standardized models and 6 sizes. One-piece construction of heavy gauge Monel Metal. No joints or seams. Reinforced and sound-deadened.
6. 31% more working space than an ordinary sink of same nominal size.
7. Less weight saves labor and expense ... installing, stocking and handling.
8. Standardized construction and quantity production methods bring prices within reach of the average purse.



Behind all this ... backing up your efforts to sell these beautiful sinks ... is the biggest sink advertising campaign ever launched. Magazine and newspaper advertising is reaching millions of the country's leading families. It is building good-will and potential business for every plumber who identifies himself and his business with this improved kind of kitchen equipment.

Ask us to mail you announcement of new low prices—important reductions on popular models.

Monel Metal is a registered trade mark applied to a technically controlled nickel-copper alloy of high nickel content. Monel Metal is mined, smelted, refined, rolled, and marketed solely by International Nickel.

A HIGH NICKEL ALLOY

MONEL METAL

NICKEL ALLOYS LOOK BETTER LONGER

THE INTERNATIONAL NICKEL COMPANY, INC.
67 Wall Street, New York, N. Y.

Please send me, Monel Metal Sink catalogue and dealer helps

*Name*_____

*Address*_____

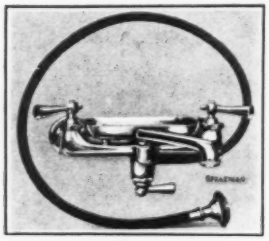
*Jobber's Name*_____

D. E.—2-20-32

THE INTERNATIONAL NICKEL COMPANY, INC., 67 WALL STREET, NEW YORK, N. Y.

These are quality fixtures, the kind on which you make a profit. Why sell fixtures on which you make no profit!

K-3395—SPEAKMAN Anystream Self-Cleaning Shower Head Pat. Jan. 2, 1923 and Nov. 3, 1931

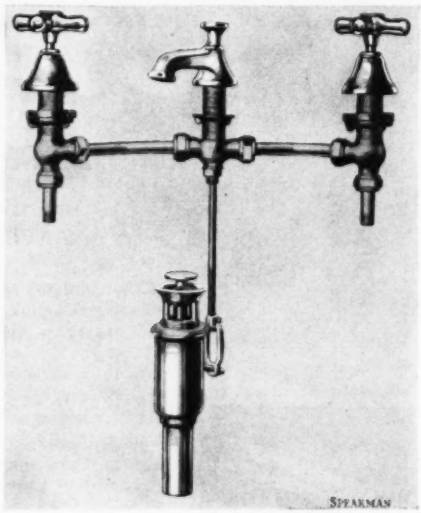


K-5504-M—SPEAKMAN Grace-Line Sink Fixture, with hose and spray head

FIGURE it out for yourself if it wouldn't pay you to put in high-grade fixtures on which you make a decent profit. When you sell these quality fixtures, in addition to your greater profit you install something that will give your customers years of satisfactory service. And when the job is finished you know that you won't be called back for adjustments and repairs.

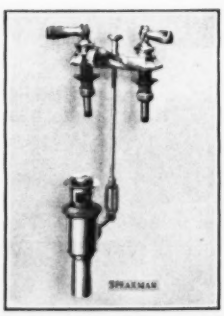
There's something else that you know very well is true, and that is when you install cheap fixtures payment of your bill is often held up until the job is made to work to your customer's satisfaction, if that can ever be done.

Speakman has always believed in quality fixtures and we are always glad to help plumbers sell our complete line by supplying literature pointing out the advantage of installing only the best. This literature, of course, will be imprinted with your name and address.



K-5010—SPEAKMAN Metaline Unit-Acto Lavatory Fixture.

K-2601-M—SPEAKMAN Built-in Mixometer Shower. Size ½ inch. Mixometer with metal wall plate and metal handle. Bent arm with heavy metal wall flange and Anystream Self-Cleaning Head K-3395



K-5057—SPEAKMAN Center-set lavatory fixture which gives extra shelf space on lavatory. Inlets 4 in. centers. A variety of lavatories are now punched to suit these fixtures.

K-4656—SPEAKMAN Act-Easy Pop-up Bath Waste

SPEAKMAN COMPANY
Wilmington, Delaware

SPEAKMAN
SHOWERS & FIXTURES

Unions promised the assistance of his group in the effort to secure a state code.

A. A. Schmidt of St. Paul reported as delegate to the last national convention, and Axel F. Peterson, also of St. Paul, described his visit to the recent convention of the Wisconsin Master Plumbers Association. He said he was greatly impressd with the varied activities of the Wisconsin organization and suggested that Minnesota expand its own activities to include some of these.

A number of visitors were present from Wisconsin, including John P. McCoy of Fond du Lac, state president, Jacob Schuh of Milwaukee and Frank Branson of La Crosse.

A. E. Wickworth, St. Paul, new state vice president

A. E. Harroun, manager of the Minneapolis association, explained in detail the activities of his group during the three and one-half years of his managership. M. T. Fox, state secretary, and H. C. Ridler, state treasurer, both of Minneapolis, submitted reports on the year's work.

The following committees were appointed by President Strader to handle the convention proceedings:

A. E. Harroun, manager of the Minneapolis association, explained in detail the activities of his group during the three and one-half years of his managership. M. T. Fox, state secretary, and H. C. Ridler, state treasurer, both of Minneapolis, reported on the year's work.

The following committees were appointed by President Strader to handle the convention proceedings:

Auditing Committee: H. M. Porter, John Holt and A. M. Wintheiser.

Credentials Committee: A. L. Lacher and Oscar Nelson.

Conference Committee: H. C. Ridler, J. G. Mehl and F. A. Beier.

Nominating Committee: Henry Hanson, Alex Plaunt, F. A. Beier, Louis Zuehls, W. W. Hughes and Walter Bowler.

Memorial Committee: H. M. Porter, M. T. Fox and H. C. Ridler.

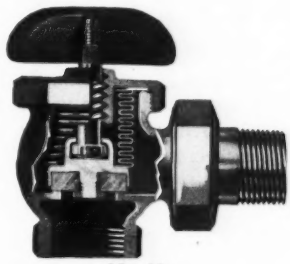
Reception Committee: Oscar Johnson, Jr., Adolph Shetka, A. A. Schmidt, Hugo Guntzel, A. Lorch, Matt Elsen, A. M. Wintheiser and Louis Zuehls.

Resolutions Committee: Axel F. Peterson, W. W. Hughes, Matt Elsen and Charles Olson.

Civic officials present at the meeting included Mayor Gerhard Bundlie of St. Paul and Herman Wenzel, former city commissioner of St. Paul.

A banquet in the Hotel Ryan brought the convention to a close. The 1933 convention will be held in Minneapolis, and during the coming year all activities of the Minnesota association will be directed from the offices of the Minneapolis association.

CAPITOL



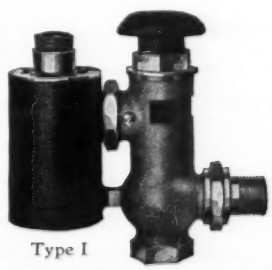
No. 99
Bellows Packless Valve

THE Capitol Bellows Type Packless Valve illustrated above is designed and manufactured to meet in the most minute detail all of the requirements of such products.

The Capitol Bellows Type Packless Valve cannot leak, bind or stick. One smooth, easy turn opens or closes the valve.

Capitol Packless Valves are made of the highest grade steam brass, rough nickel finish and highly polished trimmings. Can be furnished with lock and shield or wheel handles. Handles constructed of heat resisting composition, and finished in black with highly polished surface.

THE CONCO Temperature Control Valve is a graduated Packless Supply Valve having a temperature control unit that automatically controls room temperatures within a maximum range of 2°. For use on two-pipe heating systems. Installed like an ordinary radiator valve. Can be used to replace practically any type of radiator valve without changing pipe work. CONCO Valves have established an enviable record for accurate, uniform and dependable control of room temperatures.



Type I
Conco Temperature Control Valve

Bohn Aluminum & Brass Corporation
CAPITOL BRASS DIVISION
MANUFACTURERS OF BRASS VALVES, BOILER TRIMMINGS AND PLUMBERS' BRASS GOODS
DETROIT-MICHIGAN

Local Associations Elect New Officers

MONTCLAIR, N. J.

The Master Plumbers' Association of Montclair, Bloomfield, Verona and Vicinity, N. J., has elected the following officers for the ensuing year: Henry J. Williamson, president; Henry Weingartner, vice president; Charles J. Samuel, secretary; and Paul Zeim, treasurer.

YORK, PA.

The Master Plumbers' Association of York, Pa., recently elected the following officers to serve the association during the coming year: C. W. Brown, president; M. C. Lanius, vice president; Philip H. Smith, secretary; Frank Behler, treasurer; and C. J. Bashore, sergeant-at-arms.

PASADENA, CALIF.

The Merchant Plumbers' Association of Pasadena has elected W. H. Swihart as its president for the ensuing year. The other officers are: J. N. March, vice president; and Ray N. Batterson, secretary-treasurer.

BERGENFIELD, N. J.

The Master Plumbers Association of Bergenfield, N. J., recently held its annual meeting and re-elected the same group of officers that have headed the association for the past two years. They are: W. W. Harms, president; Joseph A. Cattelona, vice president; Edward J. Geyer, secretary; and Dermot F. Holden, treasurer.

RACINE, WIS.

The Master Plumbers Association of Racine has elected Sigmond Solheim to serve as president for the ensuing year. S. J. Schoenleber, vice president; W. R. Pugh, secretary; and John Feiner, treasurer.

TULSA, OKLA.

The Society of Sanitary and Heating Engineers of Tulsa, Okla., has elected the following officers for the ensuing year: E. L. Freeman, president; W. L. McCaskey, vice president; L. M. Megee, secretary; and H. O. Green, treasurer.

BRONX, N. Y.

The Association of Master Plumbers, Bronx Branch, Inc., New York, has elected George S. Arnone to serve as president during the coming year. The other officers are: Frank R. Roth, vice president; Philip Farbman, secretary; and Alfred Beyrodt, treasurer. Fred Schmalstich is executive manager of the association.

Convention Dates

March 9 and 10, 1932—E. S. A.—The Spring meeting of the Eastern Supply Association, to be held at the Hotel Astor, New York City.

March 14 and 15, 1932—KANSAS—The annual convention of the Kansas Master Plumbers Association, to be held at the McPherson, with headquarters at the Hawley Hotel.

March 14, 15 and 16, 1932—INDIANA—The annual convention of the Indiana Association of Master Plumbers, to be held at Muncie, with headquarters at the Hotel Roberts.

March 15 and 16, 1932—NORTH DAKOTA—The twelfth annual convention of the North Dakota Association of Master Plumbers, to be held at Fargo.

March 15 and 16, 1932—MAINE—The annual convention of the Maine State Master Plumbers Association, to be held at Portland, with headquarters at the Falmouth Hotel.

April 5, 1932—MASSACHUSETTS—The annual convention of the Massachusetts State Association of Master Plumbers, to be held in Boston, with headquarters at the Hotel Statler.

April 5 and 6, 1932—NEW YORK—The annual convention of the New York State Association of Master Plumbers, to be held in New York City, with headquarters at the Hotel Pennsylvania.

April 5, 6 and 7, 1932—MICHIGAN—The annual convention of the Michigan State Association of Plumbing and Heating Dealers, to be held at Mt. Clemens, with headquarters at the Medea Hotel.

April 11 and 12, 1932—ARKANSAS—The annual convention of the Arkansas State Association of Master Plumbers, to be held at Little Rock, with headquarters at the Lafayette Hotel.

April 11-16, 1932—A. O. B. A.—The ninth annual convention and show of the American Oil Burner Association, to be held in Mechanics' building, Boston, Mass. Convention headquarters at the Statler hotel.

April 18 and 19, 1932—MISSOURI—The annual convention of the Missouri State Association of Master Plumbers, to be held in Kansas City.

April 18 and 19, 1932—OKLAHOMA—The annual convention of the Oklahoma Master Plumbers Association, to be held at Enid, with headquarters at the Youngblood Hotel.

May 9, 10 and 11, 1932—N. P. S. A.—The annual convention of the National Pipe and Supplies Association, to be held at Pittsburgh, Pa., with headquarters at the William Penn Hotel.

May 16, 17 and 18, 1932—PENNSYLVANIA—The annual convention of the Pennsylvania State Association of Master Plumbers, to be held in Wilkes-Barre, with headquarters at the Mallow-Sterling Hotel.

May 16, 17 and 18, 1932—H. & P. C. N. A.—The 43rd annual convention of the Heating and Piping Contractors National Association, to be held at Detroit, Mich., with headquarters at the Book-Cadillac Hotel.

May 23, 24, 25 and 26, 1932—CALIFORNIA—The 31st annual convention of the State Association of Master Plumbers of California, to be held at Oakland, Calif.

June 2 and 3, 1932—VIRGINIA—The annual convention of the Virginia Associated Plumbing and Heating Contractors, to be held at Alexandria, with headquarters at the George Mason Hotel.

June 21, 22 and 23, 1932—N. A. M. P.—The 50th annual convention of the National Association of Master Plumbers, to be held in New York City, with headquarters at the Hotel Pennsylvania.

COMING TRADE EVENTS

February 20, 1932—The annual dinner, dance and entertainment of the New York University Heating and Ventilating Engineers Society, to be held at the Hotel Taft, New York City.

February 24, 1932—The annual conference given by the Massachusetts State Association of Master Plumbers and the Massachusetts Sanitary Club at Massachusetts Institute of Technology, Boston, Mass.

March 3, 1932—Beefsteak dinner and stag party of Manhattan Master Plumbers Association, to be held at Building Trades Club, New York City.

March 12, 1932—The fourth conference of the Northern California Federation of Plumbing and Heating Industries, to be held at Sonoma Mission Inn, Boyes Springs, Calif.

March 22, 23 and 24—The first annual "Forced Warm Air Short Course," to be held at Michigan State College of Agriculture and Applied Science, East Lansing, Mich.

June 20, 21, 22 and 23, 1932—Exposition of plumbing, heating and allied products, in connection with the 50th annual convention of the National Association of Master Plumbers in Madison Square Garden, New York City.

ANSWERED

A few of the Questions of most general interest asked by readers and answered by our engineers

In this issue

1—Why Range Boilers Are Supplied Through a Boiler Tube

2—The Proper Location of a Relief Valve on a Hot Water Supply System

3—The Heat Value of Certain Kinds of Oil

—1—

To the Editor:

Will you please advise me why range boilers are supplied through a boiler tube which leads down to the bottom of the boiler? The cold water is at the bottom of the boiler, so why should the supply not be taken in as shown in my sketch?

Georgia. L. B.

The method mentioned by L. B. is shown in Fig. 1. As he says, the cold water is at the bottom of the boiler. This is by virtue of the fact that due to its greater density, cold water will fall while the hot water, which is lighter, will rise.

Inasmuch as the cold water settles to the bottom, why not lead the cold water directly to that point in the easiest manner, which would be through the bottom of the boiler, as seen in Fig. 1? That is what L. B. is driving at.

There are several good reasons why it is better to connect the range boiler supply through the boiler tube, as in Fig. 2.

In the first place, feeding through the bottom of the boiler would keep the sediment which accumulates in the boiler, constantly stirred up, resulting in muddy water.

The most important reason is that such a method of supply would result in throwing a stream of cold water upward, and this would tend to cool the hot water standing in the boiler. Another objection would be of draining off the contents of the boiler through the supply pipe. If in the case of Fig. 1, a break or a leak should occur on the supply line, on the service or in the street, or if a stop and waste cock should be closed, the boiler might be drained of its entire contents.

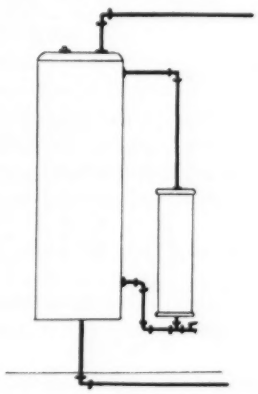


Fig. 1

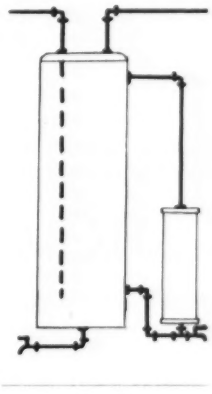


Fig. 2

This thing cannot happen in the use of a boiler tube. Of course, in the case of Fig. 2, the boiler might be emptied by siphonage, but this is guarded against by the siphon hole in the boiler tube, or by use of a vacuum valve.

In the case of Fig. 1 loss of contents would be by gravity and might easily happen.

—2—

To the Editor:

In our opinion dangerous results might come from several different conditions that might be brought about in the operating of this boiler as connected in the accompanying sketch, Fig. 1.

We would like to hear the possibilities discussed.

Michigan. R. C. T.

A number of different wrong conditions could be produced in the operation of this hot water boiler.

If the valve on the cold water supply were to be

closed, expansion through the cold water line back into the street main would be closed, and with the relief valve located where it is, it might not operate. In this event, an explosion could take place.

The proper location for the relief valve is not where it is now located, but where it comes in contact with the hot water in the boiler, in which position it can relieve the pressure when the water becomes overheated. It seems probable that in its present location it would not protect the boiler.

Why there should be a valve on the branch to the relief valve we do not understand. If this valve should

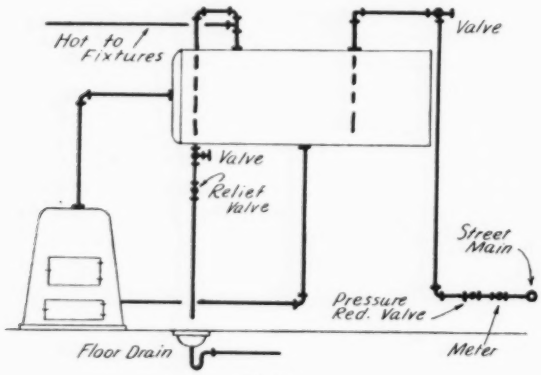


Fig. 1

ever be closed, as it might be through the ignorance of inmates, it would make the relief valve of no avail whatever. The system would then be subject to all the conditions that might exist if it were not provided with a relief valve.

A relief valve is especially needed on a hot water supply job where a reducing valve is used, for this valve might act in about the same way as a check valve, closing the path of expansion through the cold water supply back to the street main.

Another condition that would be bad in the absence of a relief valve or in case the valve on the relief valve line were closed, is that sometimes the backing of hot water into certain kinds of meters will swell the working parts, and here again there will be the same condition as in the use of a check valve on the boiler supply.

To remedy all these possibilities of the closing of expansion, the relief valve should be where it belongs.

—3—

To the Editor:

May I ask if you have any information about the Btu. contents in oils such as are drained from crank cases of automobiles and tractors?

Some oil burner users burn this oil in their oil burners, and they would like to know its heat value.

Illinois. A. G.

The generally accepted formula used in calculating the Btu. heat content in oils is as follows:

Btu. per pound of oil = 18,700 + 40 (Beaume — 10)

Beaume stands for the gravity of the oil in question and, of course, indicates the variables which enter into your question. The heavier the oil the greater the heat content. Therefore, if your crank case oil is greatly diluted or thinned out, it will not have as high a Btu. content as it did in its original state or as a heavier oil. It will be noted from the above formula that each pound of oil will have at least 18,700 Btu. Probably for your purpose this figure is close enough.

Questions Answered and Discussed by Readers

How the Question Was Answered

The following question was asked in the issue of January 23, and the accompanying answer is by a reader:

If a building has a heat loss of 20,000 Btu for 1 degree difference between the inside and outside temperatures, what temperature of air must be delivered to maintain 70 deg. Fahr. when the outside temperature is 35 deg. Fahr. if the quantity of air is 30,000 c.f.m. and the number of people in the building is 1,200?

How Would You Answer This Question?

An uncovered steam line in a building at 70 deg. Fahr. is 50 ft. long and carries steam at 5 lb., gauge pressure. What is the value of the heat lost per heating season of 200 days of 12 hrs. each, if the coal has a Btu. value of 13,000, costs $6.00 per ton and the average overall efficiency of the boiler plant is 60 per cent? What would be saved by covering the line?

Answers based upon your experience, and suitable, will be paid for and published in the March 19 issue.

—1—

THE amount of heat lost from the building when the outside temperature is 35 deg. Fahr. will be the loss resulting from 1 deg. Fahr. temperature difference multiplied by the difference between 70 deg. Fahr. and 35 deg. Fahr. or 35 degrees difference. This gives the building loss under the conditions stated as

20,000 Btu. × 35 or 700,000 Btu.

But against this is the heat generated by 1,200 persons which it is stated are in the building. Now a person gives off heat in two ways, one of which is in the shape of moisture added to the air, and the other is sensible heat and adds to the air temperature. The amount of sensible heat is different at every air temperature varying from zero at 98 deg. Fahr. air temperature, when the body temperature and the air temperature are the same and no heat transfer takes place, up to about 400 Btu. at low temperatures. When persons are in still air at 70 deg. Fahr. the amount of sensible heat given off per person is about 300 Btu. and 1,200 persons would add to the air the room Btu. as follows:

300 Btu. × 1,200 or 360,000 Btu.

Then, to obtain the amount of heat which must be supplied by the air entering the room it is necessary to subtract the heat supplied by the occupants from the heat required to keep the room up to temperature giving a net requirement of

Heat loss from room	700,000 Btu.
Supplied by occupants	360,000 Btu.
Net additional heat required	340,000 Btu.

The moisture emitted by the occupants does not affect these figures as it does not have to be removed from the air afterward as is the case where cooling is being done. In the case of heating the additional moisture simply adds slightly to the humidity in the room and then passes out through the exhaust. If the air is being recirculated the addition of fresh air usually is sufficient to prevent any building up of humidity as the fresh air with a reasonable amount of relative humidity at its entering temperature will be so dry by the time it is heated up to 70 deg. Fahr. that it will take some of the moisture out of the recirculated air and thus take care of the excess humidity in this manner.

It is known that at, or around, 70 deg. Fahr. about 55 cu. ft. of air must be cooled 1 deg. Fahr. in order to supply 1 Btu. so that the 30,000 c.f.m. supplied in this case, if cooled 1 degree, would supply.

$$(30{,}000/55) \times 60 \text{ or } 32{,}727 \text{ Btu. in one hour}$$

and it already has been calculated that the room will require the addition of some 340,000 Btu. per hour so that the number of degrees that the air must be raised above the room temperature will be

$$340{,}000 \text{ Btu}/32{,}727 \text{ or } 10.4 \text{ degrees}$$

and, since the room temperature must be 70 deg. Fahr. the temperature of the entering air must be
70 deg. Fahr. plus 10.4 deg. Fahr. or 80.4 deg. Fahr.

This may be proved by calculating back in the following manner:

Heat Supplied by Air
30,000 c.f.m. $\times$ 60 $\times$ 10.4/55 ..... 340,000 Btu.

Heat Supplied by Occupants
1,200 $\times$ 300 ..... 360,000 Btu.

Total Heat Supplied to Room ..... 700,000 Btu.
Heat Required for 35 deg. Fahr. Temp.
Diff. 20,000 $\times$ 35 ..... 700,000 Btu.

This indicates very plainly that a heat balance has been established as the combined heat input from the air and the occupants exactly balances the heat loss for a 35 deg. Fahr. difference between the room temperature and the outside temperature. If the air quantity were increased the temperature could be lowered and if the air quantity were decreased that air temperature would have to be raised. This is indicated by assuming that only 15,000 c.f.m. is being supplied; then this quantity of air lowered 1 deg. Fahr. would add only half as many Btu. per degree of drop as the 30,000 c.f.m. did owing to there being only half as much air; then the Btu. added would be

$$\frac{15{,}000 \times 60}{55} \text{ or } 16{,}363 \text{ Btu.}$$

and the temperature of the air in order to supply the 340,000 Btu. not provided by the occupants would have to be

340,000 Btu./16,363 or 20.8 Fahr. above the room which would make the temperature of the entering air 70 deg. Fahr. plus 20.8 deg. Fahr. or 90.8 deg. Fahr.

Suppose, on the other hand, that instead of 30,000 c.f.m. the air quantity were doubled and made 60,000

GERSTEIN & COOPER

TANKS
FOR EVERY
REQUIREMENT

The mighty Irving Trust Bldg., New York City, is equipped with GERSTEIN AND COOPER TANKS. According to our knowledge, these are the highest pressure tanks ever constructed for practical use.

The fact that Gerstein and Cooper quality was selected for a building of this high type where only the finest equipment was even considered, proves the confidence these products have built up among "men who know quality."

We can serve your needs from the smallest range boiler to tanks the size installed in this mammoth building.

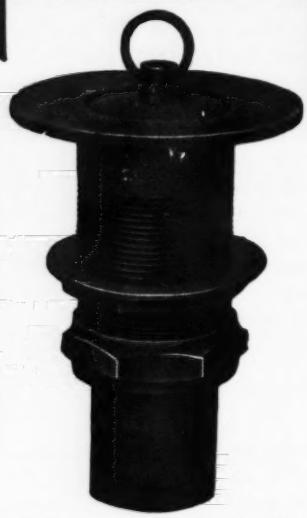
Write for details.

GERSTEIN & COOPER CO.
1-3 W. Third St. So. Boston, Mass.

Gerstein & Cooper Co., Baltimore, Md.
G. Mason Price, Montreal, P. Q.
E. N. Cokefair, Inc., New York, N. Y.
Troop Water Heater Co., Pittsburgh, Pa.

COPPER FOR SATISFACTION

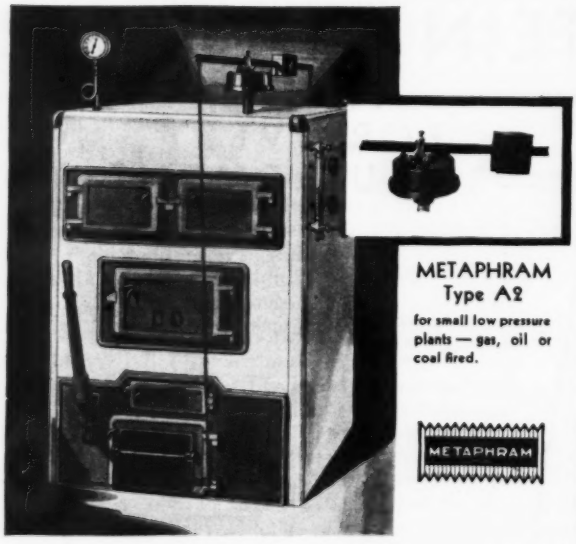
TRENTON
BRASS · PRODUCTS



TRENTON
Sink and Tray Plugs have been objects of profit for many plumbing contractors in recent remodeling plans of their clients.

They are good business to the contractor and satisfaction to the user.

The Trenton Brass & Machine Co.
TRENTON · · NEW JERSEY
Represented by
ROLLIN C. WILSON, 7 E. 42nd St., New York, N. Y., 261 Franklin St., Boston, Mass.



METAPHRAM
Type A2
for small low pressure plants — gas, oil or coal fired.

METAPHRAM Gradual Control
covers the entire range of domestic hot water and low pressure boilers and tank heaters, either gas, oil or coal fired.

Descriptive Bulletins on Request

NATIONAL REGULATOR CO.
2317 KNOX AVENUE CHICAGO

c.f.m. Then the Btu. supplied for every degree this air is lowered would be

$$\frac{60{,}000 \times 60}{55} \text{ or } 65{,}454 \text{ Btu.}$$

and the increase in temperature would be

340,000/65,454 or 5.2 deg. Fahr.

making the temperature of the entering air 70 deg. Fahr. plus 5.2 deg. Fahr. or 75.2 deg. Fahr.

Unit Heater Troubles and Their Corrections

(Continued from Page 25)

E. D. R. basis. These thermostatic traps were not able to handle all the condensate of the unit as fast as the condensate was formed. This was due to the very rapid rate of condensation giving the trap large slugs of hot water to handle. The temperature of the water was almost as high as the temperature of the steam at low pressure. This high temperature water caused the bellows to expand and close the orifices as the hot water reached the trap. The orifice would open when it had been closed long enough for the water to cool to a temperature that will contract the bellows.

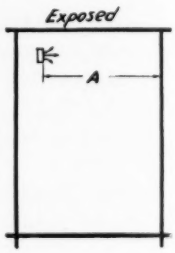


Fig. 6—This room is similar to the one shown in Fig. 1 but it is longer and has a frequently opened door in the exposed wall. The unit blows parallel to the exposed wall

A few years ago a test was made on a heater rated at 500 sq. ft. E. D. R. with a thermostatic trap rated to handle more than 700 sq. ft. of direct radiation. Approximately 60 per cent of capacity in condensate was secured from the unit. A combination float and thermostatic trap was connected to the unit and the full capacity of the unit was obtained.

It is important to provide a trap which is designed to handle condensate at high condensation rates.

PIPING, FITTINGS, AIR RELIEF, PITCH, HEAD

Too often piping is so installed that condensate from main steam lines drains directly through the units. Do not drain mains through heaters, but take off the branch for the heater from the top of the main, pitching the branch back to the main as shown in Fig. 5.

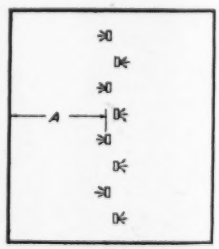


Fig. 7—This building has four exposed walls and the units blow directly toward the exposed sides

On gravity jobs provide air relief for each unit. Trouble with air valves passing water often will be eliminated by taking the air relief valve up from the drip branch by means of a tee set the distance of a short nipple ahead of the elbow dropping to the check valve and return line. See Fig. 5. This prevents water eddying or bounding up into the riser to the air valve and as increased pressure comes through the heater, the

water will follow a path to the elbow which diverts it down. Little air valve trouble has been experienced with this type of hookup.

In an uncovered piping job it was found that a branch running across an unheated entrance way of a garage, pitched towards a small heater in the show room. This branch would not supply steam to the unit because what little steam the branch could handle in addition to condensate was condensed before reaching the unit. In effect the branch and unit acted merely as a bleeder for the supply main. Pitching the branch back to the main and covering the branch, permitted a positive pressure at the heater with satisfactory temperatures maintained thereafter.

In some cases units have been said to contain defective radiators on high pressure jobs and the trouble has been found due to the piping installation not having been provided with allowance for expansion and contraction. As a consequence the strain was placed on the unit radiator. Being of light weight material, it cracked ahead of other parts of the piping system.

On low pressure gravity jobs it is suggested the piping be sized large, that mains be drained separately and not through the units, that all the head possible be put ahead of check valves, that air valves be used on each heater as already suggested, that scale pockets be used on each heater and that a satisfactory pitch for both supply and return mains be used.

In Fig. 5 an attempt is made to show what generally is conceded to be an excellent hook-up.

Miscellaneous troubles have been found, such as units running backwards, capacitors wired incorrectly, thermostats located within the immediate path of heated air causing under-heating, and heaters placed below water line of boilers or too close thereto, but all such points usually are so obvious that they should present little or no difficulty in locating causes of trouble.

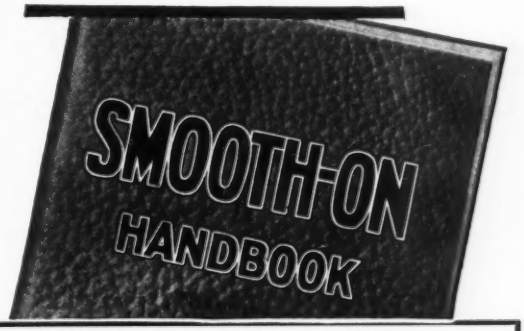
Automatic Control Applied to Range Boilers

(Continued from Page 31)

discharged cold water will play directly upon the thermostat. This would cause the thermostat to operate on every small draw, which would in turn cause a temperature building condition in the top of the tank. The maximum any thermostat should build is between 10 and 15 deg., with a temperature change of not more than 5 deg. on any consecutive draw.

As every automatic heater must have a constant burning pilot, it is imperative that each heater should be equipped with a draft hood. This point cannot be stressed too much, as it certainly is a necessity to safety. The A. G. A. laboratory will not approve any automatic gas heater without a draft hood of approved design. The pilot flame must be protected from being extinguished, for if the heater is not equipped with a safety pilot control and the thermostat calls for heat, there will be a discharge of raw gas which will not be ignited. This is both unsafe and a costly waste. Dampers should never be installed in the flue pipe. If there is a damper present upon changing the tank to automatic control, it should be taken out. In one instance the writer found

FREE!



THE 136-page SMOOTH-ON Handbook is virtually a Boiler and Engine-room Encyclopedia with thorough index for quick reference, on such subjects as:

Making permanent and emergency repairs to boilers, engine cylinders, pumps, elevator cylinders, condensers, cracked pipes, feed-water heaters, economizers, steam and oil separators, storage tanks, valves, etc.

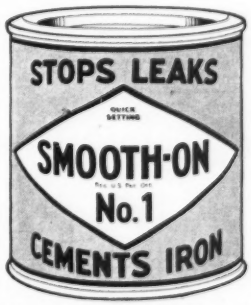
Obtaining pressure-tightness at new and old screw-threaded and flanged joints, porous spots or cracks in pressure containers.

Making emergency joints without threading, press-fit joints, unfinished cast-iron joints, caulked bell-and-spigot joints without lead, etc.

Water, oil, fire and weatherproofing walls, floors, wheel pits, sumps, storage tanks, concrete cooling ponds.

Making iron-hard durable machinery foundations, etc.

To get your copy, fill in and return the coupon.



Get your Smooth-On in 1 or 5-lb. tin or 25 or 100-lb. keg from nearest supply house, or if necessary from us direct.

SMOOTH-ON MFG. CO.
Dept. 12, 570 Communipaw Ave., Jersey City, N. J.
Please send copy of the SMOOTH-ON HANDBOOK.

Name .....

Address .....

2-20-32

Do it with **SMOOTH-ON**

"Blindfold Tests"... "Ear Tests".."Taste Tests"

.... *and now a new one* ....

the "STAND-UNDER TEST"!

WITH the cigarette makers, radio manufacturers, and food people ballyhooing all kinds of tests, it's about time for the plumbers to have one—so here 'tis!

This test is to be given to drain-lines of any material, including Duriron, used for carrying corrosive wastes. Choose drain-lines that have been installed for some time. Then remove all drip pans. Next, stand under the joint of one of the drain-lines.

When the first drop of acid hits you on the head, the test for that particular pipe is over.

Test each drain-line material the same way.

When you come to the Duriron line, you are privileged to sit down, roll over, read "The Married Life of Helen and Warren" until it is finished (it has been running in the newspapers for 20 years), and have your family move in and take up housekeeping.

For your maintenance during the duration of the test, you will be permitted to sell photos of yourself, take all courses of the I.C.S., and write your memoirs, such as "The first 20 years are the longest."

When the owners tear down the building some decades later, you are privileged to give up and issue statements to the press under your own name, that just what we have been contending right along is true — Duriron Acid-Proof Drain-Pipe will outlast the building in which it is installed.

THE DURIRON COMPANY, INC.

410 N. Findlay St. Dayton, Ohio

DURIRON ACID PROOF DRAIN-PIPE

where a damper had been closed in the flue to help protect the pilot and to economize on the flue losses. The heater door had been opened and slammed shut, extinguishing the pilot. The thermostat came on, sending gas to the burner, which, not being ignited, went up the flue to the damper, backed down around the draft hood and out into the basement. Consequently, a basement full of gas and an explosion resulted, for which the installing plumber was held liable. It takes just one case of this kind to ruin a man's business.

A reliable safety pilot control is also recommended. The A. G. A. recommends some such device on all automatic water heaters. It is so designed that if for any reason the constant burning pilot is extinguished, this device will close off the main gas supply before a great quantity of raw gas is liberated. A good control should operate within a two-minute period after the pilot flame has gone out.

A temperature and pressure relief valve of approved design should also be installed on all automatic storage heaters. If, due to uncontrollable circumstances the thermostat fails to shut off, or through the use of fire-pot coils, the water reaches a dangerous temperature, it will be relieved into a drain, where it can do no harm. If an excessive internal pressure is created, it also will be relieved. The A. G. A. recommends a relief valve on all automatic storage heaters. The installation of such a device will act as an alarm signal for abnormal conditions and will add to the peace of mind of the home owner.

Since so much stress is being laid upon the safety feature of the automatic heater, one might suspect that the gas automatic water heater is unsafe. This should not be assumed. Such is the excellence of hot water with automatic control, carefree of service and responsibility, that the modern home owner will not do without it. It is no more than sane, then, to equip these automatic heaters with safety controls to take care of any possible emergency. These safety controls act with the same purpose as the fuse on any electric circuit, and have the same meaning as the insurance policy.

Most of the important cities and towns are realizing the necessity of safe operation of gas appliances, and are passing more ordinances and regulations every year to get this safety. Massachusetts alone has 300 local safety committees guarding the safety of life and property.

The storage tank should be covered with at least one-half inch of insulation. In six months the insulation alone will save the equal of its initial cost. There are on the market today good insulation covers for range boilers. These covers are easily handled and assembled.

The tank should be drained at least every sixty days. This is done by first closing off the cold water supply, opening a hot water faucet, and then draining the tank. After the tank is empty, open the cold water inlet and allow water to run until clear. Close drain and refill system. Be sure that all gas is turned off before starting. This procedure is recommended to keep the system free from rusty water and scale, and will consequently increase the life of the tank.

Flue connections to domestic heaters depend upon local practice. It is recommended to connect all water heaters to an adequate flue. Although all A. G. A.

approved heaters are tested and approved as being safe unvented, and will operate safely without flues, best practice warrants a flue connection to the chimney. In unvented heaters the products of combustion, which are carbon dioxide and water vapor, are liberated into the room. The water vapor will steam up the windows in cold weather and overhumidify the air in the warmer months. The carbon dioxide, although not injurious, impairs the efficiency of the heater.

The above data and information may be used for reference and also as suggestions to those interested. Good judgment is essential and a prerequisite to this conversion work, as it is necessary to analyze the existing situations thoroughly before applying the correct installation.

The American Gas Association have recognized the importance of this conversion work and have appointed a Sub-Committee on Conversion Units of which H. L. Martin of The Central Hudson Gas and Electric Corp., Poughkeepsie, New York, is chairman. This Committee has already issued a valuable report. In this report they have submitted figures to indicate the extent of the conversion heater's efficiency and economy of operation.

From the same report we read "Theoretical objections to selling conversion heaters, will, of course, occur to the reader, and have already been considered. The primary objection is based upon the fear that the sale of these low priced heaters may disturb the customer's confidence in automatic water heating in general, and retard the sale of the standard automatic storage heater. Unquestionably the life of these low priced heaters is less than the life of the higher priced storage heater. However, service costs and the replacement of worn out parts are comparatively low and are usually quite acceptable to a customer who had paid only a low first cost. It is the belief of the Committee that customers who have once enjoyed the advantage of automatic hot water service will not easily return to the older makeshift methods, but will, when the conversion heater wears out, purchase a storage heater of the more expensive type."

Friction in Tees

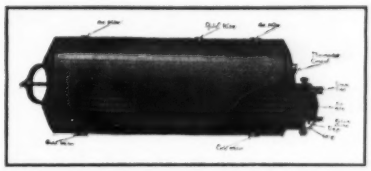
(Continued from Page 49)

Fig. 9. Of the water entering the riser 28 per cent is diverted through the first floor radiator, 31 per cent of the remainder through the second floor radiator, and 45 per cent of the new remainder through the third floor radiator. The tees for the first floor radiator branches are 1 by 1 by 1-in., those for the second floor, 1 by 1 by ¾-in., and those for the third floor, 1 by ¾ by ¾-in.

With 28 per cent of the water diverted through the first floor radiator and a 1 x 1 x 1-in. tee, v_1 is equal to v_3 multiplied by 100/28, or 3.57 v_3. The corresponding loss of head for the tee will be $\frac{{v_1}^2}{2g}$ plus $\frac{{v_3}^2}{2g}$, *i.e.*, $\frac{(3.57\,v_3)^2}{2g}$ plus $\frac{{v_3}^2}{2g}$ or 13.75 $\frac{{v_3}^2}{2g}$, or 13.75 elbow equivalents, and for the two tees in the line *BC* it will be 27.5 elbow equivalents.

The tees for the second floor branch are 1 x 1 x ¾-in. and have 31 per cent of the water flowing through them.

Morrison Instantaneous Service Heater



The installation of the Morrison Instantaneous Service Heater is effected quickly and economically. Its construction is such as to insure longest and most satisfactory service.

The Morrison's coil is removable. The shell is of steel, the interior of which may be rust-proofed or copper-lined, thus adding greatest possible life.

Install the Morrison wherever the hot water demand is continuous. Write for details and prices.

Morrison Bros.

24th and Elm Sts. « Dubuque, Iowa

PHOENIX
• BRASS •
FITTINGS

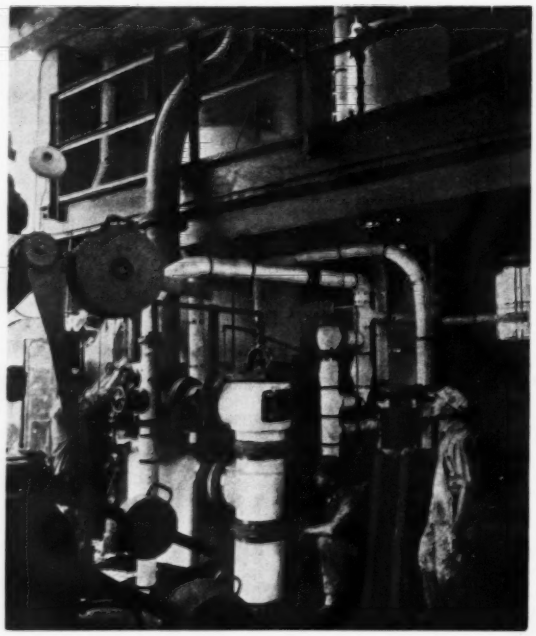
RELIABLE!

Phoenix Brass Fittings Corp.
IRVINGTON NEW JERSEY

HIGH PRESSURES
OR
LOW PRESSURES

K & M Heat Insulation
is built for the job

and K & M Engineers
will serve you wisely.



K&M "Featherweight" 85% Magnesia installed at Marquette Cement Co. plant in Illinois.

Be it a 10-inch section of "Featherweight" 85% Magnesia or a carload of 2-ply Aircell—K & M is equipped to serve you. Have you a catalog?

Keasbey & Mattison Company
Ambler, Penna.

Branch Offices and Approved Contractors in Principal Cities.

The velocity v_1 is therefore equal to v_3 multiplied by 100/31 or 3.22 and divided by 1.62, the ratio of the area of the 1-in. pipe to that of the ¾-in. pipe, or 1.99 v_3. The loss of head in the tee will be $\frac{(1.99\,v_3)^2}{2g}$ plus $\frac{v_3^2}{2g}$ or $4.96\,\frac{v_3^2}{2g}$. For the two tees in the line *EF* the loss of head will be 9.92 elbow equivalents.

Through the 1 x ¾ x ¾-in. tees for the third floor radiators 45 per cent of the water is diverted. The velocity v_1 is therefore equal to v_3 multiplied by 100/45 or 2.22 and divided by 1.62, or 1.38 v_3. The loss of head in the tee will be $\frac{(1.38\,v_3)^2}{2g}$ plus $\frac{v_3^2}{2g}$ or $2.9\,\frac{v_3^2}{2g}$. For the two tees of the line *GH* the loss of head will be 5.8 elbow equivalents.

MAYER SUCCEEDS YOUNG AS HEAD OF SAN FRANCISCO MASTERS

The first meeting of the Master Plumbers Association of San Francisco, Calif., under the leadership of the 1932 officers, took place in January at Association hall, when Charles Mayer, newly elected president, wielded the gavel. The other officers are: Jack Camp, vice president; Alexander Coleman, treasurer; Charles Noury, corporation secretary. The directorate consists of J. V. Young, retiring president; William J. Monihan, Joseph Rohr, N. J. Cohen, S. J. DiVecchio, James H. Pinkerton, William P. Goss, V. J. Petersen, A. G. Trezise, Roy Murray and J. J. McLeod.

Following a long established custom, the directors motored to Sonoma Mission Inn, where the week end of January 9 and 10 was celebrated with an enjoyable dinner, Sunday being featured by an informal golf meet.

The Metal Market

	Feb. 15	Avg. Jan., 1932	Avg. Nov., 1931	Feb., 1931
PIG IRON—				
No. 2 foundry, Chicago	$16.50	$16.50	$17.00	$17.50
PLATES AND SHEETS—				
Steel boiler plates, Pittsburgh, per lb.	1.50c	1.55c	1.60c	1.65c
Blue annealed sheets, No. 10, Pittsburgh, per lb.	1.75c	1.75c	1.85c	1.90c
*Hot rolled annealed sheets, No. 24, Pittsburgh, per lb.	2.15c	2.20c	2.40c	2.35c
Galvanized sheets; No. 24, Pittsburgh, per lb.	2.70c	2.90c	2.90c	2.90c
TIN—				
Straits tin (spot) New York	21.75c			
LEAD—				
E. St. Louis	3.55c			

The Old Metal Market
Dealers' Buying Prices

	Per lb.		Per lb.
Aluminum clippings	11½c	Copper, light	2¾c
Block tin pipe	15½c	Heavy crucible copper	4 c
Brass, light	1¾c	Zinc, old	1 c
Brass, heavy yellow	2 c	Lead, heavy	2¼c
No. 1 comp. red brass	3 c	Solder joints (close cut)	3¾c
Heavy copper and wire	4 c		

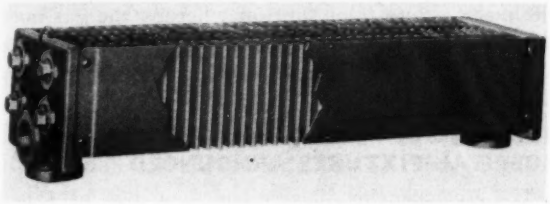
NOTE: Prices are those quoted on Monday of this week.
*Comparisons are with old classification No. 24 black sheets.

Items for STORE, SHOP *and* JOB

AS IN the case of past issues, a portion of this issue is given over to the "Spend for the Home in 1932" movement. If contractors are to benefit from this and take advantage of the home owner's inclination to improve his home investment, he must give it continued and increasing attention. Likewise, if he is to get the most benefit from efforts to develop and improve items for use in his store, shop and job, he must follow closely the significant ones which are selected for these columns.

NEW DEVELOPMENT IN FIELD OF CONCEALED RADIATION

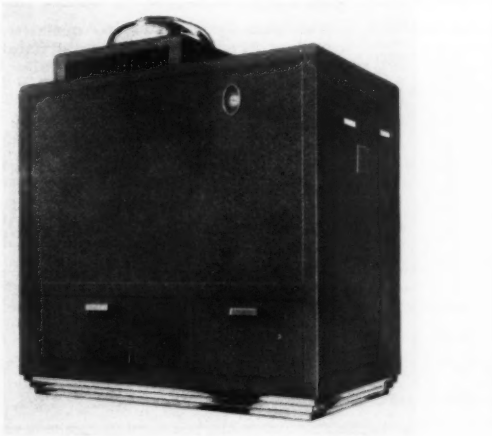
Relatively wide spacing between flues; oval shaped steam chambers; process of joining oval tubes and extended surfaces by means of electrically welded clips;



light weight and a marked tendency towards self-cleaning are some of the features claimed for a recent development in concealed radiation. The unit is shown herewith. There are three flues per inch of length and it will be observed the headers have been designed to permit connections out of either the side or the bottom. The manufacturer is the American Radiator Co., New York.

GAS BOILER DESIGNED FOR REMODELED BASEMENTS

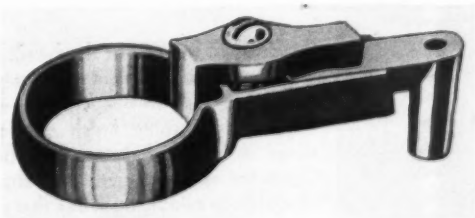
A gas boiler has been placed on the market. It was designed as an entirely new product to fit in with the growing popularity for remodeled basements. According to the description, in the planning of the item, ease of erection and installation from the contractor's point of view was given prominent consideration. Listed as distinguishing items are the following: It has a French grey baked enamel cover with chromium base, dome and instrument panel. The manifold and burner cocks are enclosed.



Natural or manufactured gas may be used in the burners. It is manufactured by the National Radiator Corp., Johnstown, Pa.

AN ADJUSTABLE GUIDE FOR BALL COCKS

The illustration accompanying this item shows an adjustable guide for ball cocks which just recently has been placed on the market. The single screw is designed to clamp the vertical guide hole in place and force the wedge. It is being made by the General Products Co., Hamden, Conn.



Readers will find in this department news of our industry's progress in the manufacture of equipment. You can read of the efforts of manufacturers to develop products which will increase customer demand, will make shop methods more efficient and will simplify installation.

DAHLQUIST

COPPER BOILERS

Gas Side-Arm

Automatic Electric

For Authentic Performance and Low Cost

When specifying new hot water service equipment, whether for large industrial boilers or household units—the greatest satisfaction and lowest ultimate cost is obtainable only by securing a Dahlquist-made boiler.

Dahlquist Copper Boilers are the finest on the market, and offer patented features found in no other boiler.

Dahlquist Patented Super-Aquatherm, which cuts the cost of fuel, and Dahlquist Turbo, which stops "Mud" accumulation in the boiler, revolutionize the home hot water service.

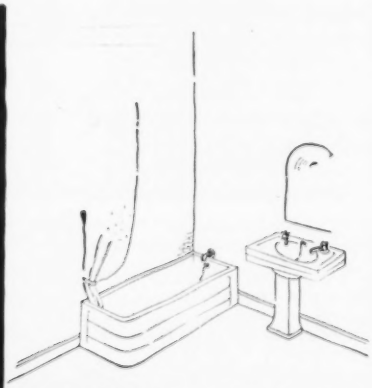
Write for full particulars.

Architects and heating engineers may rely entirely on Dahlquist workmanship and experience, whether for range boilers, automatic storage boilers or heavy pressure boilers.

WRITE FOR OUR PRICES

Dahlquist Manufacturing Co.

60 West 3rd Street So. Boston, Mass.



Bead Chain brings out the beauty of any fixture to which it is attached, because of its own beauty. It may be ordered in chrome finish or nickel silver to match fixtures. Sell Bead Chain for appearance—its quality is completely established. See that your men suggest it on every job.

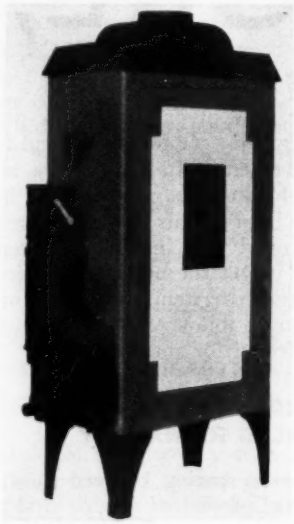
THE BEAD CHAIN MFG. CO.

Bridgeport Connecticut

Bead Chain For Beauty

DOMESTIC WATER HEATER FOR BOTTLED AND PIPED GAS

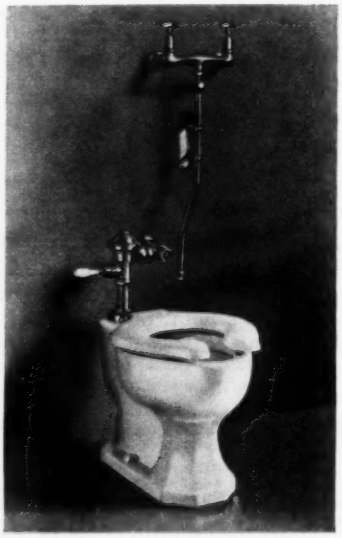
Announcement has just been made of a domestic water heater being placed on the market, which is designed to utilize either bottled or piped gas. Some of the features which are claimed for it are that it



works on high or low water pressure, it contains an automatic safety pilot shut-off whereby the gas main is locked until the pilot is relighted and it is operated by mechanical control. The heater is being made by the Watrola Corp., Ltd., San Francisco, Calif.

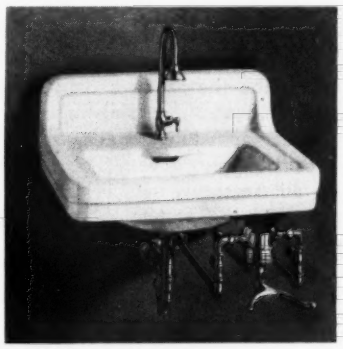
NEW LINE OF HOSPITAL FIXTURES ANNOUNCED

The accompanying illustrations show two of a new line of more than 120 special hospital plumbing fixtures and fittings. Continuous flow baths, infants' baths ,and pre-natal baths; massage tables, mortuary tables and autopsy tables; various types of lavatories, surgeons'



Hospital closet with an exposed bed pan cleanser

scrub-up sinks, utility sinks, plaster work sinks and service sinks with wrist, arm, knee and foot controlled fittings; X-ray developing sinks, laboratory sinks and medicine sinks; syphon jet closets with bed pan cleaners,

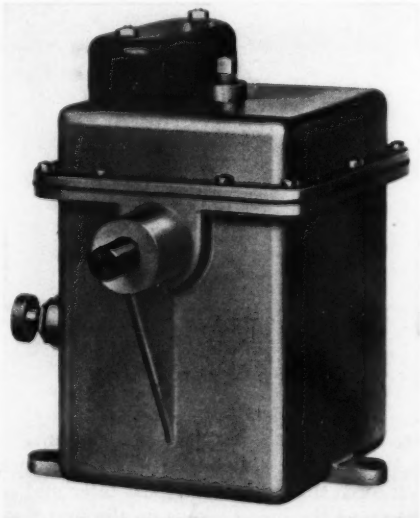


Vitreous china lavatory with knee control mixing valve

hydrotherapeutic showers, anti-scalding showers and other products are included in the list of items. Overrim supply is a feature of most of the fixtures and is designed to eliminate the danger of cross connections and possible contamination of the regular water supply. All of the iron enameled fixtures can be furnished in acid resisting enamel and are available in colors as well as in white. Kohler Co., Kohler, Wis., is the maker.

DAMPER CONTROL FOR BLAST SYSTEMS AND VENTILATION

A damper control has been designed for use in connection with blast systems and unit ventilators where the operation of dampers or louvres through a fixed angle is required. It is claimed that the unit may be mounted in any position and adjusted for any speed



either before or after installation. Also, it is described as containing additional limit switches for operating auxiliary equipment so as to throw the load of the damper controller only upon the thermostat or equivalent that controls the controller. The Barber-Colman Co., Rockford, Ill., is the manufacturer.

QUALITY
SPRINKLER
DRAINAGE
FLANGED
AND STEAM
FITTINGS

SEMLER COMPANY
JEANNETTE-PA.
SURE FIT FITTINGS

TABER SUMP PUMPS IN GENERAL USE

Built for 5 ft. pit. Single and Duplex Units

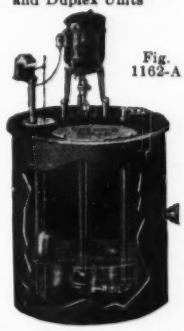


Fig. 1162-A

Sold with and without tank

The larger Taber Sump and Sewage Pumps are being specified and used on jobs requiring high grade equipment. Following are single unit sizes in general use. . . . 1750 R.P.M. 60 Cycle and Direct Current.

Type	G.P.M.	Head	Outlet,in.	Plate in.	H.P.	Wgt. lbs.
AL-25-2	25	20	1	24	¼	272
AL-50-2	50	20	1¼	32	¾	350
AL-75-2	75	20	1½	36	1	436
AL-100-2	100	20	2	36	1½	481
AL-150-3	150	20	2½	36	2	607
AL-200-3	200	30	3	36	3	675
AL-300-3	300	30	4	36	5	772

Write for complete Bulletin SS-629

TABER
TABER PUMP CO Est 1859
Taber Pump Co., 290 Elm St., Buffalo, N.Y.

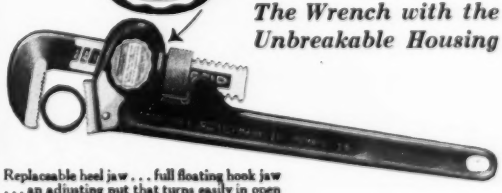
ARE YOU GOING TO "CASH IN" ON THIS SUMMER'S HEAT?

Last year—portable showers were in great demand—everyone wanted to "cool off" quickly.

Our new line of *"Milwaukee portables"* is now ready—at prices that *defy competition.* We suggest writing for Bulletin No. 32 mentioning your jobber's name.

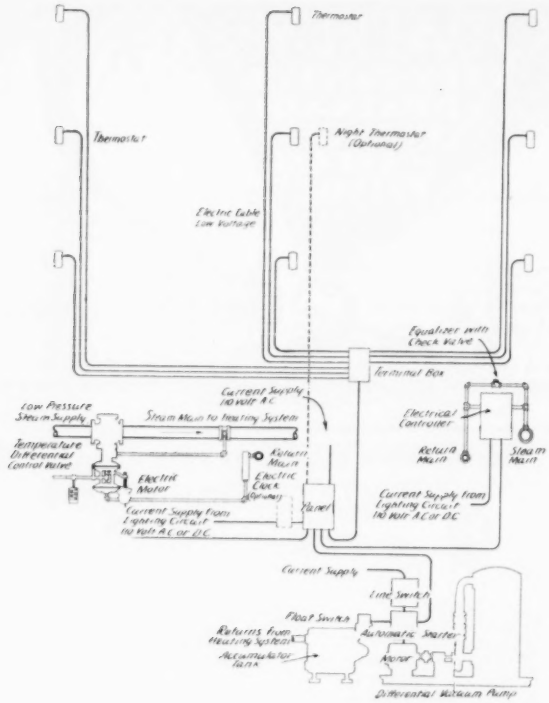
MILWAUKEE FLUSH VALVE CO.
MILWAUKEE, WIS.

RIDGID
The Wrench with the Unbreakable Housing



Replaceable heel jaw . . . full floating hook jaw . . . an adjusting nut that turns easily in open housing . . . instant grip . . . no slipping . . . instant let-go . . . and now, *double* its old strength. See the RIDGID at your Jobbers.

THE RIDGE TOOL COMPANY, Elyria, Ohio



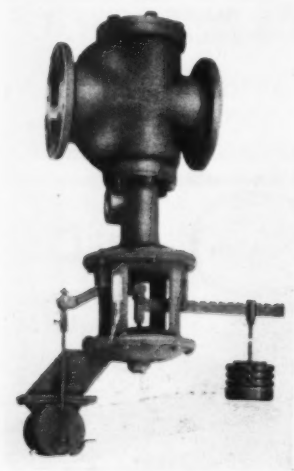
Diagrammatic illustration of hook-ups for system designed to maintain average temperature control

CONTROL DESIGNED TO AVERAGE BUILDING TEMPERATURE

A development in temperature control equipment and practices has just been announced and was demonstrated at the Heating & Ventilating Exposition, Cleveland, in January. Essentially, it provides a means for averaging the temperature in a building or in zones of a building, thus regulating the heat supply. The demand for heat is determined by the average temperature of the building and the supply of heat is controlled so as to balance this average demand. The system involves apparatus to determine what is the average temperature of the building or unit space under consideration and correlated apparatus to govern the rate of heat supply in accordance with that demand.

In the installation, nine or more potentiometer thermostats are located strategically throughout the building or zone to determine the average temperature and resultant demand for heat. Electrical impulses from these related thermostats actuate a motor which operates a single main steam supply valve. The operation of the valve, in turn, automatically sets up a related sequence of adjustments within the system. These result in steam circulation at a pressure, temperature, speed and quantity necessary to meet the heat demand. The motor which operates the steam supply valve opens or closes the valve to any required percentage or its full travel depending upon the intensity of the average call for heat from the building. This feature has been designed to prevent alternate under and over supply of heat, so-called puff circulation, noises and over-rapid expansion of piping.

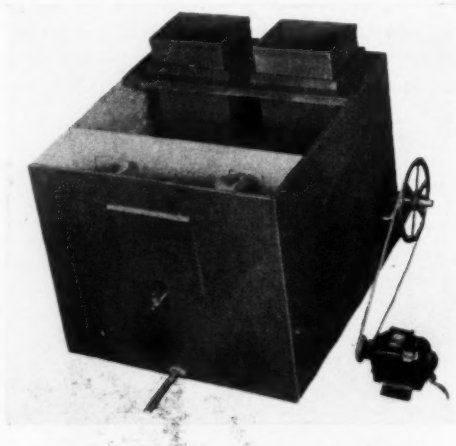
The improvement has been developed by C. A. Dunham Co. of Chicago for use with the company's system of heating.



Valve with actuating mechanism for controlling the flow of steam

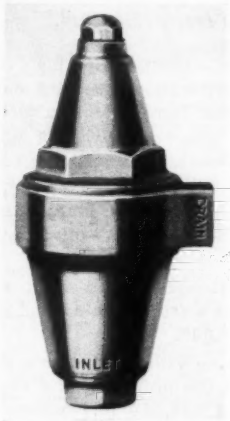
AIR CONDITIONING UNITS FOR STEAM AND HOT WATER SYSTEMS

During the past year, a new line of air conditioning units has been developed to cover the field of home and small building requirements. The items have been designed to be adaptable to steam and hot water heated homes. On such jobs, a separate air conditioning unit is placed in the basement and connected with a register or grille in the hall or some other central point on the first floor, from where the air is taken down into the basement through ducts. It then is washed by a spray of water, filtered through a spun glass filter and returned to one or two of the living rooms on the first floor. The units are built in three different models; two sizes for home use and one size for office use. Where water temperatures in the summer are too high for cooling and dehumidifying, an auxiliary cooling unit may be utilized for first cooling the water. The item is manufactured by Dail Steel Products Co. of Lansing, Mich.



IMPROVEMENTS IN PRESSURE RELIEF VALVE

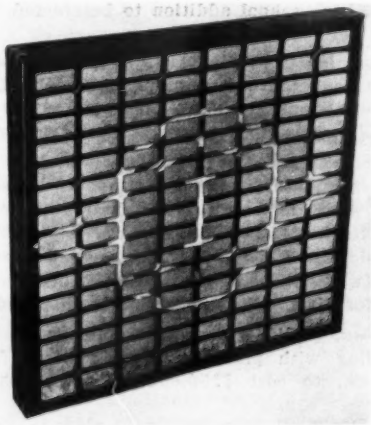
Improvements have been announced in regard to a pressure safety relief valve for hot water heating systems. The item is shown herewith. It has been



designed so that the filter may be cleaned without disturbing the adjustment of the mechanical unit and the valve seat is submerged in water at all times. The valve is a product of Kainer & Co., Chicago.

AN AIR FILTER USING GLASS WOOL

Announcement has been made of an air filter consisting of glass wool. The container for the filter is of paper, the idea being that when the item is dirty, it is to be thrown away and replaced with a new one. It is designed to absorb dust in excess of its own



weight which is two pounds. The paper container is said to establish a tight seal between the filter and the metal frame into which it fits. Being furnished in thicknesses of two inches, four-inch or greater requirements in filters are provided by building up two or more thicknesses of the unit. It is pointed out that with two units in tandem, it is necessary only to replace one dirty unit at a time. The Owens-Illinois Glass Co., Toledo, Ohio, is the manufacturer of this equipment.

Common Sense Dictates . . .

"KOVEN"

GALVANIZED STORAGE TANKS!

"GALVANIZED" *Because . . .*

1. By the "KOVEN" method, each Galvanized Tank is thoroughly coated with Zinc on the *inside* as well as the outside.
2. Galvanized Tanks supply clean water.
3. Galvanized Tanks last longer.

"KOVEN" *Because . . .*

1. "KOVEN" Tanks are superior in WORKMANSHIP, CONSTRUCTION and WEIGHT.
2. You are protected from inferior tanks by the "KOVEN" steel label welded to each Tank. Insist on Tanks with the "KOVEN" label!

Range Boilers
Storage Tanks
Septic Tanks
Fuel Oil Tanks

TRADE MARK
L.O.K. & BRO. INC.

Expansion Tanks
Pneumatic Tanks
Barber Boilers
Scullery Sinks

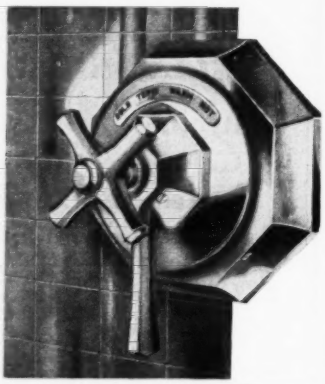
L. O. KOVEN & BRO., Inc.
154 Ogden Avenue
JERSEY CITY, N. J.

LEONARD WATER MIXING VALVES

THE outstanding feature of Leonard Valves is, of course, the point of perfection reached in the matter of accuracy of operation. The Leonard reputation has been built by a standard of unequalled performance over many years.

But the Leonard's extremely neat appearance, its modern lines, has been a big selling feature in many recent remodeling installations.

WRITE FOR LITERATURE



Manufactured by
LEONARD-ROOKE COMPANY
Incorporated 1913
PROVIDENCE, RHODE ISLAND

LEONARD WATER MIXING VALVES

PIPE FITTINGS

Clean threadways—Tapping to gauge—Absence of sand holes—all go to distinguish—IMICO—Fittings.

A full line in malleable iron, cast iron and brass.

Also manufacturers of brass and iron valves.

ILLINOIS MALLEABLE IRON CO.
Chicago, Ill.
MANUFACTURERS OF BRASS AND IRON VALVES

Large Construction Projects

Even though new construction is at a low ebb compared with recent peak years, the fact remains that new projects are being started every day. Listed below are just a few of the larger building operations, either contemplated or only recently started.

Milwaukee, Wis.—Downey Heating Co. has been awarded the contract to install the heating and ventilating system in the Solomon Juneau high school, under construction in this city. The company's bid was $82,829. Wenzel & Henoch, Milwaukee, submitted the low plumbing bid, amounting to $30,878.

Pierre, S. D.—A two story sanitarium with a 100 bed capacity will be built at the Indian agency here to cost $375,000.

Hamilton, Mont.—The Bitter Root Packing Co. plans the construction of a fruit packing and refrigeration plant here to cost $200,000.

New Castle, Pa.—William M. Clark & Co., of this city, has been awarded the plumbing and heating contracts on a total low bid of $36,850 in connection with two state institutional construction projects at the Polk, Pa., state school and the crippled children's hospital at Elizabethtown, Pa.

Muskogee, Okla.—Duff Plumbing and Heating Co. is installing the plumbing, heating and ventilating system in the new Cty Hall and Municipal auditorium here. The air conditioning system is designed to supply 75,000 cubic feet of air per minute.

Buffalo, N. Y.—E. W. Edwards and Son department store has preliminary plans in progress for erection of a seven-story building on the site of its present store in Main street, to cost more than $750,000. Construction work will start early this spring.

Brattleboro, Vt.—Architect Harry K. White, 19 West 44th street, New York City, is preparing plans for a 2-tory brick high school addition to be erected on Linden street at a cost of $225,000.

Worcester, Mass.—The city is planning to spend $250,000 to increase the water supply from the Quinapoxet Reservoir, Holden, Mass. R. G. Lingley is city engineer.

Independence, Kans.—The Brune Plumbing and Electric Co., of this city, is installing the plumbing and heating in the new Montgomery County court house in Independence. The company also has the plumbing and heating contract on two residences in Bartlesville, Okla., the Foster residence with 13 bathrooms, and the Dahlgren residence with 7 bathrooms. Both houses are also equipped for air conditioning, which will be added later.

Jamestown, N. Y.—The state architect's office, Albany, is proceeding with plans and specifications for a new armory here, to cost $250,000. Construction will get under way in 1932.

Devils Lake, N. D.—Plans are under way for the construction of a court house and memorial building here to cost $350,000. Nairne W. Fisher, St. Cloud, Minn., and John W. Marshall, Devils Lake, are associate architects on the project. G. M. Orr Co., 408 Baker building, Minneapolis, Minn., is the mechanical engineer.

Ottumwa, Ia.—Construction will start soon on a six-story packing plant building here for John Morrell & Co., to cost $400,000. Part of the building will be used for a refrigerated storage plant.

Taft, Okla.—The O'Connor Co., of Muskogee, Okla., has the plumbing and heating contract on five new buildings

At the left: H. D. Williams, of C. S. Mersick & Co., New Haven, and Charles V. Haynes, vice president, Hoffman Specialty Co., Waterbury, taking a practice shot out of a sand trap. Right: F. E. Doyle, New Haven, and J. H. Allen, Crane Co. Photos taken at recent tournament of the Connecticut Plumbing and Heating Trades Golf Association

and two remodeling projects for the Deaf, Blind and Orphans' State Institute in this city.

Tuskegee, Ala.—W. G. Madison Co., of Ames, Ia., has been awarded a $30,000 plumbing and heating contract for the new science building at the Tuskegee Institute.

Minneapolis, Minn.—The Second Church of Christ Scientist, Twelfth street and Second avenue South, is having plans prepared for a new church to cost about $600,000. **Kimball, Steele & Sandham**, 836 World-Herald building, Omaha, Neb., are the architects. Abigail D. Thompson, 1202 Plymouth building, Minneapolis, is chairman of the building committee.

Falmouth, Mass.—F. A. Barbour, 119 Tremont bldg., Boston, is engineer for the proposed sewerage system to cost $140,000. Work will involve a sewer main in the business section, disposal plants on Gifford street and at the town farm, also two centrifugal pumps.

Fergus Falls, Minn.—Plans are being completed and bids will soon be taken for the construction of a court house and post office addition to cost $175,000.

Mandan, N. D.—The Lewis & Clark hotel, recently damaged by fire, will be rebuilt at a cost of about $100,000. L. B. Hanna, of Fargo, is the owner. The Parker Hotels Co. is operator of the hotel. W. F. Kurke, 54½ Broadway, Fargo, is the architect.

Waterville, Minn.—C. B. Bliss has been awarded a $15,054 plumbing and heating contract in connection with the new high school to be built here. Broaten & Foss, Orpheum building, Fergus Falls, Minn., are the architects.

Sioux City, Ia.—Contracts have been awarded for the construction of a three-story office building at Fourth and Hones streets, to cost $125,000. The Sioux City Investment Company, Herman Galinsky, president, is the owner. K. E. Westerlind, 726 Badgerow building, is the architect.

Minneapolis, Minn.—The Curtis Hotel Company, of which L. F. Melony is president, are having plans drawn for a 17-story addition to the two present 12-story wings, to contain 312 rooms, at a cost of $1,500,000. Plans will provide for 28 stories to be added later, providing 500 more rooms at an additional cost of $1,500,000. William K. Macomber, Inc., of Minneapolis, is the architect.

Minneapolis, Minn.—Construction will soon start on a parochial school and convent for the Holy Rosary Parish, at Eighteenth avenue South and Twenty-fourth street, to cost $175,000. The school will be two stories and the convent three stories. Stebbins, Haxby & Bissell, 320, 1111 Nicollet avenue, are the architects.

New York, N. Y.—J. McCullagh, Inc., New York City, has received the plumbing contract, and the Baker-Smith Co., also of New York, has received the heating contract on building No. 10 of the Radio City project. John Weil Plumbing Co. received the plumbing contract for building No. 8, and J. L. Murphy has the Theatre building, No. 10.

THE ease with which the new Weisway Shower Cabinet may be assembled and the positive assurance that it gives against leakage, make it a highly desirable item from the plumber's standpoint. In addition, the Weisway Shower Cabinet meets a demand which is already existing so it is relatively easy to sell. Frequently the idea of installing a shower bath serves as the opening wedge for a complete remodeling job.

The Weisway Shower Cabinet is a thoroughly tested product and is backed by all the experience and resources of a company which has been, for more than fifty-five years, in the business of making metal building products. It is a companion to the Weisteel Integral Shower Cabinet and extends the possibilities of the shower cabinet business to the finest and most luxuriously equipped homes.

The Weisway Cabinet is sold exclusively through the plumbing trade. If you cannot get complete details and prices from your plumbing jobber, write direct to us for full information.

HENRY WEIS MFG. COMPANY, INC.
ESTABLISHED 1876
Elkhart, Indiana

WEISWAY

New Trade Literature

Pocket Catalog of Welding and Cutting Apparatus

Air Reduction Sales Co. of New York City has issued a catalog describing and illustrating its welding and cutting apparatus and supplies. This catalog is pocket size, 26 pages, 3½x6¼ in., and lists specifications on all types of welding and cutting torches, regulators, cylinder trucks and hose connections, made by this company.

Circular on Sump Pumps and Circulators

The Triangle Mfg. Co., Detroit, Mich., has issued a four-page circular containing descriptive material pertaining to its line of electric sump pumps and hot water circulators. Diagrams which illustrate proper installation methods add to the value of the circular.

Catalog of Concealed Radiation

Circular Heat Co., Inc., of Louisville, Ky., has issued a catalog, 28 pages, 8½x11 in., illustrating and describing its line of concealed radiation, designed to be used in connection with steam, vapor, vacuum, or hot water systems. Installation details, capacity tables and ratings are included in the catalog, as well as a list of installations of these radiators in residences, schools, colleges, convents, hospitals, churches, clubs, lodges, apartments, stores and theaters.

Bulletin of Copper Plumbing Fittings

Parker Appliance Company of Cleveland, Ohio, has issued Bulletin No. 39, consisting of 8 pages, 8⅜ x 10⅞ in., describing and illustrating its new line of copper plumbing fittings, including tubing, connectors, flanges, bushings, elbows, tees, crosses, inner seal joints, couplings, etc.

Catalog of Suspended Type of Unit Heaters

The Herman Nelson Corporation of Moline, Ill., has just issued an attractive and exceptionally well printed and well illustrated catalog of its suspended type of unit heaters for certain classes of commercial and industrial buildings. These heaters are designed for long range air delivery to heat working levels in industrial buildings without wasting floor space. They are economical because of their ability to quickly direct heat to the spot where it is needed and because they take the air from overhead and project it downward with enough force to break up cold air strata at the floor, preventing cold production-numbing, working areas and overheated, fuel-wasting ceiling areas. This catalog consists of 48 pages, 8½x11 in., and its value is greatly enhanced by the addition of suggested piping arrangements, specifications and capacity tables.

The Keeney Manufacturing Co.'s Catalog

The Keeney Manufacturing Co. of Newington, Conn., has issued its Catalog A, illustrating and describing its products, including floor and ceiling plates and air valves as well as tubular plumbing goods, such as connected waste and overflows, "S" and "P" traps, anti-siphon "P" and "S" traps, basin, bath, and low-down tank supply pipes, wheel handle stops, cast brass elbows, reducers, closet slip elbows, overflow tubes, brass boiler tubes, cast brass slip joint nuts, sink plug tailpieces and sink funnels, sink strainers and lavatory plugs, offsets and brass flanges, continuous sink and tray wastes, bead chains and curtain rods, pop-up basin waste and shower heads, etc. This is a loose-leaf catalog and consists of 46 pages, 8¾ x11 in.

Automatic Oil-Burning Water Heaters

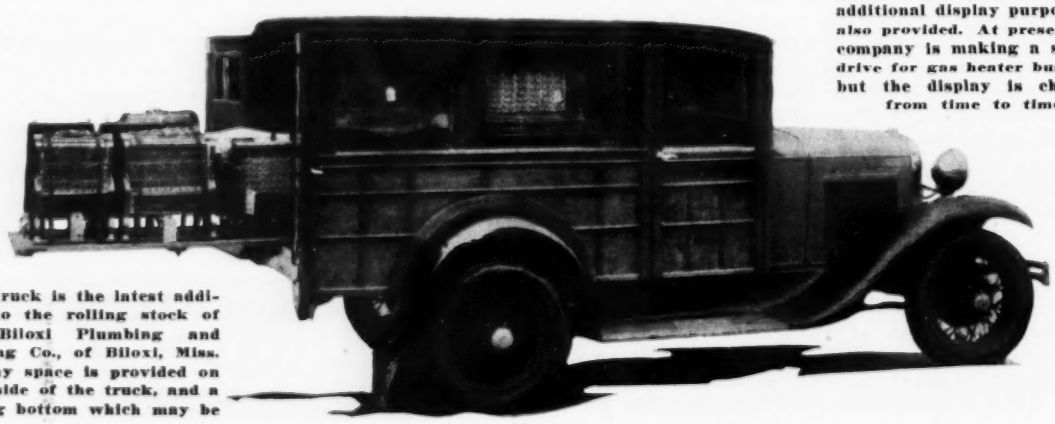
Quaker Manufacturing Co. of Chicago, Ill., has issued two folders, one 10x6 in., and the other 25½x11 in., illustrating and describing in detail its line of automatic oil-burning water heaters. These folders are printed in three colors, black, red and green, and they will give the reader a clear idea of the construction and the operation of these heaters.

Boiler Water Feeders, Water Circulators and Regulators

Watts Regulator Co. of Lawrence, Mass., has issued catalogs of its water circulators for hot water heating systems, regulators for hot water heating systems, and boiler water feeders and low water cut-offs. These catalogs are well illustrated and they also give complete instructions and detailed layouts for the installation of these devices.

Catalog of Plumbers' Rubber Goods

Lavelle Rubber Co. of Chicago has just published its twentieth anniversary catalog under the title of "Mechanical Rubber Craft—Catalog F." This catalog consists of 44 pages, 8¾ x 11 in., and is printed in three colors, black, red and green. The company, in commemorating its twentieth anniversary, presents in this catalog its enlarged line of mechanical rubber specialties. While it contains those products that have proven most popular, it also embraces many new items. Among those to which most space has been devoted are the following: Force cups and plungers, tank balls, rubber floats, fuller balls, beveled bibb washers, spud and tank washers, basin, bath and laundry tub stoppers, elbows, bar pattern seat bumpers and recess bumpers, bath sprays, red sheet packing, etc., etc.



This truck is the latest addition to the rolling stock of the Biloxi Plumbing and Heating Co., of Biloxi, Miss. Display space is provided on each side of the truck, and a sliding bottom which may be withdrawn from the truck for additional display purposes is also provided. At present the company is making a special drive for gas heater business, but the display is changed from time to time

The "Murdock" Alternater Closet

Pat. and Pats. Pend.

For the

Private Home

as well as for Larger Buildings

Operates on Only 12 Gals. per Min.
And on $\frac{1}{2}$" or $\frac{3}{4}$" Supply Pipe
Uses Only $2\frac{1}{2}$ Gallons of Water

Is Practically Silent in Action

Write for Particulars and Prices

The Murdock Mfg. & Supply Co.

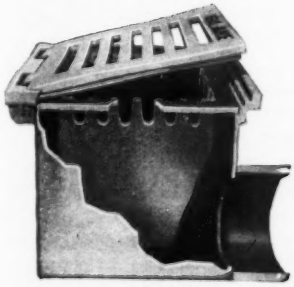
1853-1932 Cincinnati, Ohio 1853-1932

BLAKE HEAVY DUTY INDUSTRIAL DRAIN

K-44—(Patented)

with safety pan and basket. Safety seepage parts are accessible at all times. Basket catches all solids and can be lifted out. Recommended for packing houses, factories, etc. Extra heavy top strainer. Made in 4 and 6-inch sizes.

BLAKE EXTRA HEAVY FLOOR DRAIN



K-44A

with mud or refuse bucket and hinged strainer. Suitable for schools, warehouses, dairies or any place where refuse is to be caught and the clearer water escape. Bucket lifts out. Strainer is 12 in. square. Overall top 13¼ x 14 in. Depth 10 in. Hub outlet furnished in 3, 4, 5 or 6 in. soil or screwed pipe. Weight 85 lbs.

Sold by all jobbers.

"MAKE NO MISTAKE—USE THE TESTED BLAKE"

BLAKE SPECIALTY COMPANY

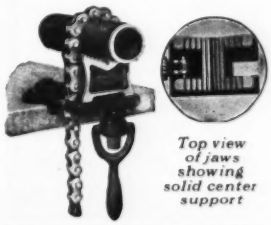
ROCK ISLAND « ILLINOIS

ARMSTRONG BROS.

A grip that can't slip —yet won't bend the smallest pipe

Armstrong Bros. Chain Vise offers the type of *extra* service that makes Armstrong Bros. tools leaders in every field. It holds pipe rigidly, securely, yet will not bend even the smallest pipe, because in *this* vise, pipe is *fully* supported.

Armstrong Bros. Pipe Vise is light, strong, compact; combines large capacity with convenient weight; fits readily in tool bags. It possesses these special features: Drop forged 1-piece jaws; Drop forged base; Drop forged handle; Alloy steel screw; Hardened steel nut; Proof-tested chain—a distinguished member of the line of "Better Pipe Tools" bearing the familiar Arm-and-Hammer trade mark.



Top view of jaws showing solid center support

Write for Catalog P-10.

ARMSTRONG BROS. TOOL CO.

"The Tool Holder People"

323 N. Francisco Ave. Chicago, U. S. A.

London Branch:
Armstrong Bros. Tool Co., Ltd.
35 Upper Thames St., London E.C. 4, England

Just Look At The

LAPPED-IN HEAD

This is similar to Pneumatic Tank Construction for strength and appearance and avoids any possibility of leakage.

PENNSYLVANIA RANGE BOILERS

Sold Thru Jobbers

Complete line of *All Welded* and *Riveted and Welded* Galvanized Boilers.

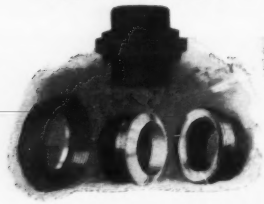
JOBBERS: Write us for sample of any boiler for 30 day inspection.

Pennsylvania Range Boiler Company

Established 1895

24th & Washington Ave. Philadelphia, Pa.

DART
Unions



THE recent business depression has taught many a lesson to the business man, and one is, know what you buy. This has been the Dart motto always, see what we make our great claims for before buying. We offer you a sample of a Dart Union. Take it apart. Examine the TWO BRONZE SEATS and ground joint ... and then you'll buy.

E. M. DART MFG. CO. :: Providence, R. I.
The Fairbanks Co., Sales Agents
Canadian Factory: Dart Union Co., Limited, Toronto, Canada

Stop this!

Eliminate those unexpected "shots" of hot and cold water in shower baths. Stop the time wasted in trying to get water at the right temperature. Install Powers Mixers. Write for 20-page book.

THE POWERS REGULATOR CO.
2716 Greenview Ave., Chicago
Offices in 37 Cities

With The
POWERS
SHOWER MIXER

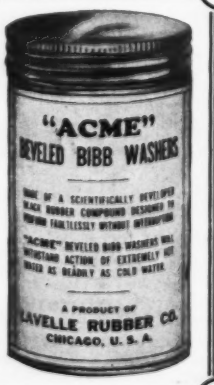
IT'S THE WORK ...NOT THE SALES TALK

THE WRENCH WITH THE ANGLE HANDLE

U. S. HAME COMPANY
BUFFALO, N. Y.

Try the new and improved USHCO Lawson Wrench! It out-performs any other wrench on the market. Its patented principle and the angle handle make it definitely a better wrench.

Our folder gives the details and specifications on these wrenches. It is Free. Write for it now.



"ACME"
Beveled Bibb Washers

A bibb washer designed to operate faultlessly. Made of a tough black rubber compound, hot and cold water resistant, overcomes rapping or chattering, will not swell groove or cut. Allows full water way, seats perfectly. Made in seven popular sizes. The ACME HANDI-PAK contains 100 assorted washers.

The Name "ACME" is stamped on every washer.

LAVELLE RUBBER CO.
320 W. Illinois Street, Chicago

Business Changes

St. Louis, Mo.—The Eichler Heating Company has moved into new quarters at 2125 Locust street, in this city.

Madison, Wis.—J. E. Kleiner, engaged in the plumbing and heating business formerly at 2113 Oakridge avenue, Madison, has purchased the R. C. Jepertinger Corp. plumbing shop at 2113 Atwood avenue.

Waterloo, Ia.—The Stebbins Plumbing & Heating Company has moved from its former location to 928 Randolph street.

Mobile, Ala.—Leahy and Landry Heating and Plumbing Company, formerly at 75 St. Michael street, is now located in its new office and showroom at 154 S. Franklin street.

Weiser, Ida.—John H. Cushing has sold his plumbing, heating and electrical business, located on East Commercial street, to S. A. Dyer.

Newport, Ore.—The dissolution is reported of the plumbing and heating firm of Bragg & Baird, J. F. Baird having sold his interest to J. S. Bragg.

Williams, Ariz.—Mrs. Florence Nebe is continuing the business of the Williams Sanitary Plumbing and Heating Co. Mr. Nebe was recently killed in an automobile accident.

Conover, N. C.—D. E. Bolick has begun the erection of a 2-story plumbing shop and display room.

New Contractors and Incorporations

Albany, N. Y.—James J. Coyle has opened a heating contracting business at 99 Delaware avenue in this city.

Allentown, Pa.—N. W. Shafer & Co., 632 North Law street, is the name of a new heating contracting firm which has been established at the above address. The shop was formerly owned by C. M. Hoats, who died about two years ago. The present owners are the late Mr. Hoats' son and N. W. Shafer, who was associated with him in business for eight years. The company reports that business is coming along nicely.

West Los Angeles, Calif.—The Acme Plumbing Service Co. has opened for business at 1745 Pontius avenue, under the management of James A. Patterson, of 2205 Cambridge street.

Portland, Ore.—The Division Street Plumbing, Hardware & Specialty Shop has engaged in business at 1079 Division street, under the management of Frank F. Cosby.

Glasgow, Mont.—Howard Johnston and Russell Garrison have formed a partnership and engaged in the plumbing and heating business here.

Los Angeles, Calif.—The M. Green Plumbing & Heating Co. has engaged in business at 604 North La Brea avenue, under the management of Mack Green.

Pasadena, Calif.—The Valley Sales Co. has engaged in the retail plumbing and heating business at 311 Braley building, under the management of Harry B. Hefner.

Louisville, Ky.—The Krause-Weilage Co., composed of C. C. Krause and Henry H. Weilage, has been organized to do a steam and hot water heating business, for installation of ventilating systems, refrigeration systems, pumps, heaters, etc., plus all types of piping installation, repair work, modernizing of old plants, etc. The concern is located at 838 East Chestnut street.

B. P. Tuite, Oneda; Mrs. and Mr. R. L. Ehrsam, Utica. Photos taken at the annual convention of the New York State Association of Master Plumbers, held recently at Utica

Brooklyn, N. Y.—With a nominal capital of $1,000, the Kravitz Plumbing and Heating Company has been organized and incorporated, to establish and operate a plumbing and heating engineering and contracting business. The new firm is represented by M. Felder, 57 Graham avenue.

Buffalo, N. Y.—The Jenson Heating Company has been established in modern quarters here under the management of Peter E. Jenson, 48 Oakland Road, Williamsville, N. Y.

Buffalo, N. Y.—The Hastings Auto Plumbing Shop, Inc., has been chartered, with a capital of $10,000, to establish and operate a plumbing engineering and contracting business. Representating the new concern is the local law firm of Stein and Arbury.

Brooklyn, N. Y.—The Kraissl Company, Inc., has been chartered, with a capital of $25,000, to establish and operate a plumbing engineering and contracting business. Representing the new concern is the law firm of Boyd, Chapman, Vreeland and Gaither, 57 William street, New York City.

Brooklyn, N. Y.—The Silpin Plumbing Corp. has been organized, with a capital of $2,000, to establish and operate a plumbing engineering and contracting business. The new concern is represented by M. E. Katz, 16 Court street.

Brooklyn, N. Y.—The firm of A. Mihlstein and Son, Inc., has been chartered, with a capital of $5,000, to establish and operate a plumbing engineering and contracting business. The law firm of Jacobs and Nadell, 1305 Forty-sixth street, represents the new concern.

Floral Park, N. Y.—James Borowick and associates have chartered the firm of J. Borowick, Inc., with a capital of $1,000, to establish and operate a plumbing engineering and contracting business. I. Grunstein, 166 Nassau street, New York, represents the new firm.

Chewelah, Wash.—George McKibben has engaged in the plumbing and heating business here.

Chippewa Falls, Wis.—Anderson Plumbing Co. has filed articles of incorporation with the Wisconsin secretary of state, listing capitalization, 20 shares at $100 each. Incorporators are H. Anderson, Sr., H. Anderson, Jr., and George Anderson.

Wilmington, Del.—With a capital of $25,000, the H. S. Johnson Company has been organized and incorporated, to establish and operate a heating contracting business. The Corporation Trust Company represents the new firm.

Newark, N. J.—Louis B. Ladoux and associates have chartered the firm of Louis B. Ladoux, Inc., with a capital of 2,500 shares of no par common stock, to establish and operate a plumbing and heating contracting business. Benjamin Cohn, local attorney, represents the new company.

Detroit, Mich.—The Bell Plumbing, Heating and Hardware Co., 11958 Grand River avenue, has been incorporated with a capital stock of $20,000, of which $4,000 has been subscribed and paid in.

$3,000 RING
found in bath tub

THIS departing guest was frantic: A $3,000 diamond ring lost—and he couldn't wait to look for it. With agony in his voice, he called the United Manager. Three hours go by. The guest has gone, but the manager is still on the job.

A wild idea—the Manager pokes a flash-light down the bath tub drain—there's a faint sparkle—plumbers arrive, the drain gives up a $3,000 ring.

Another true story proving that United Managers do the impossible in finding lost articles. This extra service costs the hotel money? Yes, but what of it. Extra service is taken for granted at United Hotels, just like larger rooms per dollar—and handy garage accommodations.

Extra service at these 21
UNITED HOTELS

NEW YORK CITY's *only United*.....The Roosevelt
PHILADELPHIA, PA.....The Benjamin Franklin
SEATTLE, WASH.....The Olympic
WORCESTER, MASS.....The Bancroft
NEWARK, N. J.....The Robert Treat
PATERSON, N. J.....The Alexander Hamilton
TRENTON, N. J.....The Stacy-Trent
HARRISBURG, PA.....The Penn-Harris
ALBANY, N. Y.....The Ten Eyck
SYRACUSE, N. Y.....The Onondaga
ROCHESTER, N. Y.....The Seneca
NIAGARA FALLS, N. Y.....The Niagara
ERIE, PA.....The Lawrence
AKRON, OHIO.....The Portage
FLINT, MICH.....The Durant
KANSAS CITY, MO.....The President
TUCSON, ARIZ.....El Conquistador
SHREVEPORT, LA.....The Washington-Youree
TORONTO, ONT.....The King Edward
NIAGARA FALLS, ONT.....The Clifton
WINDSOR, ONT.....The Prince Edward

UNITED HOTELS

What Women Are Doing

It's a Great Life If Your Endurance Is Good!

Another complete short story, from the interesting biography of the wife of one of the men in the trade who, as you will find, is doing much to promote her husband's business. This interesting story tells how this clever business woman helps in her husband's office

IT WAS after we moved into our new store that I had my first real sales experience. I had done promotion work previous to that time but never got the good old name on the good old dotted line, for most sales had been closed not in our office but in the other man's office or in his home. We were now featuring a heater for small homes that was becoming very popular, and shortly after we moved into our new place, a woman came in to inquire about one. It was in the middle of July and as hot as a July day could be, and when I went forward to wait on her, I had as much idea of selling her a heater as I did of selling ice to an Eskimo. I pointed out the many attractive features of the heater to her but frankly I made no attempt to get her order.

After a few moments study she said, "Well, I believe I'll take one." "I won't need it until fall," she added, "but here is $25 as a deposit on it, and you can deliver it about Oct. 1st."

I was completely dumbfounded and could scarcely find an order blank and pencil. Needless to say, I did find them, however. and that sale was like a taste of blood. I thirsted for others and made them.

The heater manufacturers had told us that they would circularize all the names we would send them with four attractive direct-by-mail advertisements. I took them up literally on this proposition and sent them 10,000 names. They had not expected such a deluge but were game and lived up to their side of the bargain, whereas I for my part was careful to send them only names which should prove good prospects. I toured the town in my spare moments, jotting down the names of the streets and the particular blocks where the houses appeared to be of a type adaptable to this heater, and then from the directory got the names of the occupants of these residences. I also sent in many names from the small towns and country territory out in the state.

As a follow-up to this latter class of promotion work, we had an exhibit at the State Fair that fall, featuring this heater, and it created a real stir and helped sell many heaters for us. Rather than have an ordinary 10x10 exhibit in the Merchants and Manufacturers Building, we put on a tent show across from that building where we were conspicuous by being different from the others, there was plenty of room for display, for the crowd to mill around as they will do at a Fair, and more of a chance for showmanship. I was on duty there that week from ten in the morning until ten at night with more or less help from others of the force as they could spare the time from routine duties. I was tired but happy when the week ended, for results were good due to the fact that we were showing equipment with a direct appeal to the rural population, who make up the greater portion of a State Fair attendance, and we presented it pleasingly and convincingly to them.

The Fair was in early September and from leads from the Fair, exhibit and other sources, we sold so many of these featured heaters that fall that our stock was soon exhausted, and we had to book them up ahead in the order received and promise delivery as soon as we received shipment from the factory. What could bring more of a thrill to an embryo salesman than that and how enthusiastic I was as to plans for the sale of this same heater the next year! It was well that I could not see into the future then and know how this particular sales bubble was to burst and bring all of us so many worries.

(To be continued)

MINNEAPOLIS AUXILIARY TAKES UP "FEDERATION" CLUB WORK

The Minneapolis, Minn., Women's Auxiliary, through its president Mrs. Fred Stiller, has become well acquainted with the activities of the General Federation of Women's Clubs. At the last auxiliary meeting, Mrs. Stiller urged every member to attend a meeting of the Federation group which was held on January 30. Mrs. Stiller was recently requested to serve on the registration committee of the Fifth District Federation of Women's Club for the Midwinter Council of the state federation. The auxiliary

is contemplating donating some money to help keep a child in school.

The sixth anniversary party of the Minneapolis Auxiliary was held recently at Eagles hall. It was an evening affair to which the husbands of the members were invited. There were ten tables of bridge and five hundred. A committee composed of Mrs. V. E. Beaudry, Mrs. Overfeldt, Mrs. Stiller and Mrs. P. J. Gleason served a lovely lunch. Mrs. Stiller donated a birthday cake decorated with six candles. On January 19 a social meeting was held at the Abdallah cafe, in the form of a one o'clock luncheon.

At a recent meeting of the auxiliary, the following officers were elected for the ensuing year: Mrs. Fred Stiller, president; Mrs. H. W. Strader, first vice-president; Mrs. A. G. Nelson, second vice-president; Mrs. V. E. Beaudry, third vice-president; Mrs. B. D. Miars, treasurer, and Mrs. Hugo Guntzel, secretary.

OKLAHOMA CITY WOMEN GIVE CARD PARTY

In spite of adverse weather, most of the members of the Oklahoma City, Okla., Auxiliary attended the meeting on January 4. Most of the business hour was spent in planning for the dinner which took place February 1. Following the business meeting the usual bridge party was enjoyed, at which time the men joined the ladies. High scores were made by Mrs. J. M. Anderson for the ladies and Mr. E. L. Radek for the men.

Red and white color scheme was used in keeping with St. Valentine's day, and refreshments were served by the hostesses, Mrs. Charles Swan and Mrs. Sam Rice.

OGDEN, UTAH, AUXILIARY ELECTS OFFICERS

The Ladies' Auxiliary to the Sanitary and Heating Engineers of Ogden, Utah, met recently for a New Year's card party, with all members and their husbands present. The party was held at the home of Mrs. Harry Eggleston. Mrs. J. H. Blaes, Mrs. Milton Bachman and Mrs. Alma Wharton won honors at cards.

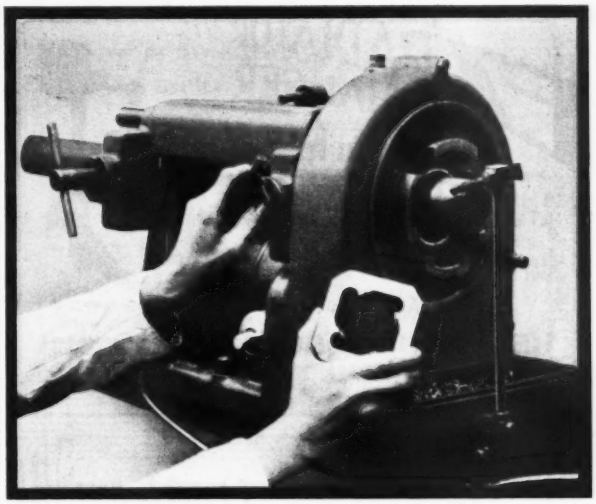
At a recent meeting at the home of Mrs. Charles Stone, the following officers were elected: Mrs. C. W. Bishop, president; Mrs. Milton Bachman, vice-president; Mrs. Alma Wharton, secretary and treasurer; Mrs. Charles Stone, corresponding secretary; Mrs. John Blaes, sick committee, and Mrs. Kaplan Bachman and Mrs. Guy Leigh, refreshment committee.

ENTERTAIN CALIFORNIA GROUP

The members of the Women's Auxiliary of the Southeast Merchant Plumbers Association of California, and their husbands, were entertained recently by Mr. and Mrs. A. W. Sharlein, of Bell, Calif. Five hundred was enjoyed during the evening with honors going to Mrs. Minor and Mr. Homan. Among those present were: Mr. and Mrs. Eugene Minor, Mr. and Mrs. A. G. Parrott, Mr. and Mrs. Roy Dillon, Mr. and Mrs. A. R. Pfenninghausen, all of Southgate; Mr. and Mrs. F. M. Saurders of Lynwood, Mr. and Mrs. E. C. Hohman of Maywood and Mr. and Mrs. Sam Nukols of Bell.

DENVER WOMEN ENTERTAINED

The Ladies Auxiliary to the Denver Master Plumbers Association was entertained recently at a local tea room by Mrs. Carl Thurston. A delicious luncheon was served to eighteen persons. Monte Carlo whist was played with Mrs. Kiser and Mrs. Hurley taking honors. On January 27, Mrs. F. Welle entertained the auxiliary at her home with a luncheon. Eighteen were also present at this affair. Whist was played with Mrs. Demmer, Mrs. Mellema, and Mrs. Thurston taking honors.



Light, rugged, fast, easy to transport or install. Clean threads on pipe or bolts, ½ to 2 inches of copper, lead, cast iron or steel. 110-volt current, ½ h. p. G. E. Motor. Reversible power. Dies, cutoff and reaming attachments furnished. Will do anything any size threader will do, and do it efficiently and economically.

Write for details.

AXELSON MANUFACTURING CO.
Box 710, Vernon Station Los Angeles, California

AXELSON portable THREADER

THE effectiveness of design, sturdy construction and high quality of materials used in all Worcester wire brushes and boiler tube cleaners means thorough cleaning and long service.

The Worcester line is complete.
Catalog gladly sent upon request.

WORCESTER BRUSH and SCRAPER CO.
10 AUSTIN STREET :: WORCESTER, MASS.

E-Z RADIATOR HANGER

For All Radiators

THREE STYLES Meet every requirement. Adjustable horizontally and vertically. Wall-hung radiators quickly, easily installed. Used by leading architects and contractors.

Write for Complete Information.

Style "H"

HEALY-RUFF COMPANY, 770 Hampden Ave., ST. PAUL, MINN.

Also Manufacturers of

E-Z INSERTS and E-Z LAVATORY HANGERS

American Quality

No. 648-655 Cast Set Screw Flange, nickel plated, is another example of American Quality. Bored out to slip from 7/16" O. D. to 2" I. P. S. O. D. Ask your jobber or write direct for full information on the American Line.

AMERICAN SANITARY MFG. CO. *Abingdon, Ill.*

No. 648

SPEED MEANS PROFIT—

and Yager's Soldering Salts is one of the reasons you can leave the job with as little delay as possible. Try Yager's. See for yourself why plumbing contractors everywhere are adopting it as standard for lead work.

See our catalog in Domestic Engineering Plumbing & Heating Catalog.

ALEX R. BENSON CO., Inc., Hudson, N. Y.
Sales Agency for Canada:
CANADIAN GENERAL ELECTRIC CO.
Toronto and Montreal

See McRae's 1932 Blue Book for list of distributors.

JONES HOLLOW WARE CO.

Established 1888

BALTIMORE • MARYLAND

Manufacturers of

Enameled Iron Water Closets, Hoppers, Traps, Tanks and Plumbers' Specialties

Write for prices

NATIONAL PRESIDENT ADDRESSES MESSAGE TO AUXILIARY MEMBERS

Your president wishes you all a Happy and Prosperous New Year. Although we are entering upon a new year by the calendar, we are just half way through our auxiliary year, and there is so much to be done before its close. We must be up and doing so we will have good reports to bring to the convention.

We are happy to welcome into our family a brand new auxiliary, the Champaign-Urbana Women's Auxiliary, of Illinois. Keep up the good work, Illinois!

Remember the prize for new members; it will be awarded on a percentage basis. Please be sure to have your lists of new members in this office by the first day of June, at the latest.

As many of the auxiliaries will soon be electing new officers, will the secretaries please send their names to the corresponding secretary as soon after election as possible?

It has come to our attention that some do not understand the structure of our organization, and for their benefit I would state that the local auxiliary comes first, then the state, then the national. There should be at least three locals before a state division is formed, the first one organized usually taking steps to form such a division.

If the locals do not support the state, where is it to get its support? Just as the national depends upon the state for support, so does the state depend upon its locals; therefore, I hope that all local auxiliaries that have withdrawn from their state divisions will immediately affiliate with them again.

In order that the affairs of the national auxiliary may be put upon a business basis, we shall send out bills in February, to each state division, and to locals where there is no such division. Please fill them out and return to the corresponding secretary with dues.

Several requests have been received for an installation ceremony and as we had none, one has been prepared, and we will be glad to send a copy to any auxiliary upon request.

At the convention in Milwaukee it was voted that the president appoint a committee to select a suitable marker for the graves of master plumbers which could be supplied to auxiliaries upon request. That committee has been appointed and consists of Mrs. J. J. Corcoran of Jersey City, N. J., chairman; Mrs. William Bloeth, Rockville Centre, N. Y., and Mrs. George M. Hicks, Philadelphia, Pa.

Are you thinking of something to bring to the convention in the way of a suggestion, or constructive criticism? Remember, the meetings are yours, and anything you may bring for the good of the auxiliary will be welcome. Come with ideas and help make the convention of 1932 one long to be remembered because of its unity of purpose and loyalty to one another.

Wishing you all success in your auxiliary work.

(Mrs. J. Preston) Sarah B. Perham,
National President.

ALBANY, N. Y., AUXILIARY ELECTS NEW OFFICERS

The Albany, N. Y., Women's Auxiliary has elected the following officers for the ensuing year: Mrs. Andrew Ryan, president; Mrs. William Dugan, vice president; Mrs. Henry J. Noord, secretary; Mrs. William P. Ryan, treasurer; and Mrs. Joseph O. Stapf, publicity chairman. The auxiliary presented the retiring president, Mrs. Joseph O. Stapf, with a beautiful handbag. The members are making a determined effort to increase their membership roll.

BOSTON WOMEN CONTRIBUTE TO M. I. T. FUND

The Women's Auxiliary to the Boston Master Plumbers Association met for its regular monthly meeting at the home of Mrs. Louis Jacobs in Jamaica Plain, January 19. During the well-attended business meeting, reports were made of the money expended for welfare relief. It was voted to contribute a sum of money toward the pledge made by the master plumbers to the Massachusetts Institute of Technology. With so many men present at the close of the evening, much merriment took place due to the unbounded hospitality of the hostess and her family. Delicious refreshments were served.

JERSEY CITY INSTALLS NEW OFFICERS

The Jersey City, N. J., Women's Auxiliary installed new officers at the February 2 meeting, held at the Masonic Temple. The new heads of the auxiliary are Mrs. William Mulholland, president; Mrs. Robert Gilligan, vice president; Mrs. Grace MacDonald, secretary; Mrs. Joseph Reilly, treasurer; and Mrs. Louis Komoski, sergeant-at-arms. The trustees are Mrs. John Sharrock, Mrs. John T. Edge and Mrs. K. Conlin. After the installation, the officers and members attended a theater and supper party.

MRS. D. STEVENS IS NEW HEAD OF GERMANTOWN AUXILIARY

The Ladies Auxiliary to the Germantown, Pa., Master Plumbers Association held its monthly meeting on February 2 at Waterview recreation center, with 14 ladies present. Election of officers took place with Mrs. D. Stevens being selected to serve as president; Mrs. H. Neilson, first vice president; Mrs. James J. Rooney, second vice president, and Mrs. John J. Rush, secretary-treasurer. The social committee consists of Mrs. E. C. Rich, chairlady; Mrs. I. Lee and Mrs. J. J. Rooney. Two new members have recently been admitted into the auxiliary. Mrs. James J. Rooney and Mrs. George Geere were hostesses at the meeting. The next meeting will be held on March 1 at Waterview recreation center.

INDIANAPOLIS AUXILIARY ENTERTAINS

On the evening of January 23, the members of the Women's Auxiliary of Indianapolis, Ind., entertained their husbands at the home of Mr. and Mrs. Richard Bardy. Cards and bunco were played, after which refreshments were served. The business meeting of the auxiliary was held on January 8 at the home of Mrs. Tyra Collins. The meeting was followed by cards and bunco. A delightful luncheon was served.

ATTEND INSTALLATION CEREMONY

The Women's Auxiliary to the Newton, Mass., Master Plumbers' Association met at the home of Mrs. N. Jepson on January 13. Mrs. Kieser read a letter from Mrs. E. V. Hornbrook, past national president, in which she asked the members to interest themselves in the Needlework Guild.

On January 14 the members of the auxiliary were the guests of the master plumbers at their installation ceremony at the Beaconsfield hotel, Brookline. Following a few brief talks, a delightful program of entertainment was provided by Mr. and Mrs. Fred Perkins and Mrs. Florence Sanders. Dancing followed.

Mrs. Ryan and Mrs. Kieser presented bouquets of roses to Mrs. Perham, Mrs. Donoghue, Mrs. Rose and Mrs. Stevens, wife of the president of the Newton Master Plumbers Association, in behalf of the Newton auxiliary.

There is no surer way
to make a pipe wrench
safe and strong than to
make it all steel
like **TRIMO**

. . years of experience dictated the design

. . common sense dictated all steel construction

Made by the world's leading makers of pipe tools

TRIMONT MFG. CO., Roxbury (Boston), Mass.

IMPROVED "WILHELMI"
All Copper BOILERS

Through a special process in the rolling of the Lake Copper from which all Improved "Wilhelmi" All Copper Boilers are made, the metal takes on a hardness that is akin to that of steel.

This is just one of the big selling points found in the Wilhelmi. May we send you literature telling all about them?

HAYES MFG. CO., *Makers*
Paterson, N. J.

As you gain new business and the confidence of your customers by installing welded pipe systems, permanently leak-free, you will develop increasing confidence in Airco Oxygen if you give it a trial.

Its uniform quality and availability in any quantity should interest you if you are welding. If you are not, we shall be glad to explain how to gain customers, more business and even cut your overhead thru its use.

Air Reduction Sales Co.
Lincoln Bldg., E. 42nd St., New York City

ACHESON

When the bid is close, you must be positive of every piece of equipment in your installation. That kind of an installation demands that ACHESON BRASS FITTINGS be used, the dependable line for the plumber to use.

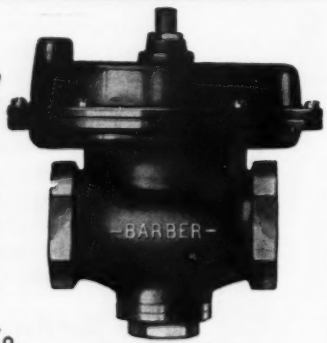
See our line of Fittings in Domestic Engineering Plumbing and Heating Catalog.

ACHESON MFG. COMPANY
RANKIN, PA.
Warehouse—197 Lafayette St., New York City

BRASS FITTINGS

RAVENA
IRON PIPE FITTINGS
1903-1932
OVER A QUARTER CENTURY OF SERVICE
A-1 QUALITY
ACCURATE GAUGE
PROPER TAPER
CORRECT NUMBER OF THREADS . .
PROMPT SHIPMENT OF ORDERS . . . .
ECONOMICAL PRICES
All Backed By
Twenty Eight Years
of
Manufacturing Experience
RAVENA IRON COMPANY
RAVENA N. Y.

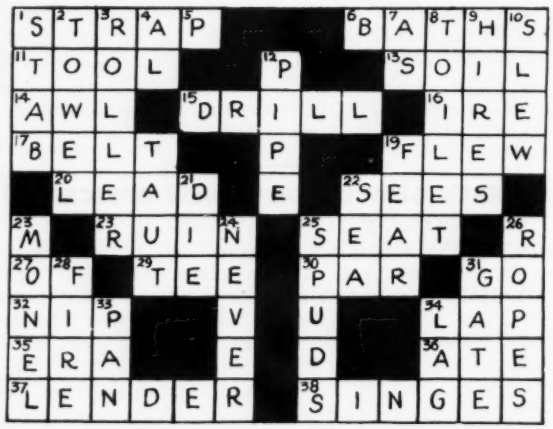
SAVE
on gas bills!
That's what everyone of your customers is trying to do—get gas bills down as low as possible. With a BARBER Gas Pressure Regulator on any gas appliance, gas bills will be much lower. Show one to your customers, take the orders and the profit. Write for details.
The Barber Gas Burner Co.
3702-4 Superior Avenue
CLEVELAND . . . OHIO



Made in ⅜", ½", ⅝", ¾", 1", 1¼", 1½" and 2" sizes

You wouldn't think of missing your daily paper « « «
yet it does not begin to help you as your business paper does . . so why not spend a minute to send in your subscription. You will soon realize the tremendous help you have been doing without.
DOMESTIC ENGINEERING
1900 PRAIRIE AVENUE . . CHICAGO

Pipe —— Lines
Connected by LyT



Above we show the solution to the crossword puzzle submitted by J. Louis Holloway, of Washington, Kans.

Correct solutions have been received from the following:

Mrs. Care Peterson, Corry, Pa.
F. J. Manning, LaCrosse, Wis.
Rudolph Laho, Jr., Bensenville, Ill.
Ed Bosak, Crete, Nebr.
James Clark, Bangor, Me.

To each of these good people we shipped immediately, by parcel post, one jumbo ice cream cone marked, "If not delivered in five days, never mind."

Mr. Bosak, in sending in his solution also sent in a crossword puzzle of his own into which he very ingeniously managed to work the words "DOMESTIC ENGINEERING." Will we publish it? Watch our next issue.

A famous travel writer says that the hardest thing to find on some South Sea islands is a South Sea islander. We wonder if he has ever tried to find an athlete around an Athletic Club?

Father: "Can you give my daughter the luxuries to which she has been accustomed?"

Suitor: "Not much longer. That's why I want to get married."

AND HOW!

New York's richest debutante has seven automobiles and four homes, besides an inheritance of $50,000,000 all made in the tobacco industry. That's what we'd call keeping kissable.

TIT FOR TAT

"Mr. Cohen," phoned the cashier, "our accounts show that you owe us $50. You have overdrawn your account to that extent."

"Is dat so?" remarked Cohen. "Vell I vant you should do me a favor. Go into your books and see how ve stood in January."

Two minutes later the cashier phoned: "Mr. Cohen, your account shows that in January the bank owed you $2,000."

Cohen's reply came triumphantly over the wire: "Vell, did I call you up in January?"

Farmer (talking about hard times): "Well, if all else fails, we farmers can eat our forest preserves."

City chap: "You've nothing on us. We can eat our traffic jams."

McNutt: "I met that impossible Billswiggle today."

Wife: "And I suppose you argued until you were black in the face?"

McNutt: "No; only around one eye."

Leighton's Gloom Chaser.

When Cupid, says a bright editor, hits the mark, he usually Mrs. it.

L. Y. T.

Bath a Day Movement

PUBLICITY has an advertising value. The aggressive master plumber will find that being represented in the news columns of his local paper has a sales value.

Of course, he will want to have his name there in connection with material that is of actual news interest. In this he will find the Bath a Day Movement a help. A distribution of copies of "The Story of the Bath" to the school children will be good news as will the organization of an essay contest to be based on material in the booklet.

In addition to working with the schools, there are the various civic clubs. If you are a member of the Rotary, Kiwanis, Lions—or of any organization of the kind—we have a Twenty-Minute Program all worked out for you. No trouble for you—it's complete. Just write for it and it will be sent to you with our compliments, along with a complimentary copy of "The Story of the Bath" for you to read.

Secretaries of master plumbers' organizations should familiarize themselves with this program, so that they may be able to tell members about it when they ask for assistance in preparing material for use before civic clubs.

Little Sentences That Sell

Write one of these BLACKBOARD EPIGRAMS on your window or bulletin board each day. Many master plumbers and heating contractors find them real business getters.

A lean conscience makes a fat office.

* * *

The ocean has its hardships—and they are mostly ironclads.

* * *

A great mind is always a generous one.

* * *

Politeness is a coin that passes current in every land.

* * *

Tell your pipe stories to the plumber—he enjoys them.

* * *

Many a man walks and runs a risk at the same time.

* * *

The eye is the barometer of the heart.

* * *

Poverty nips many a budding genius in the bud.

* * *

Every misery a man misses is a blessing.

* * *

You can't take a trick with the trick of fame.

* * *

A strong will is firmness—a strong won't is obstinacy.

* * *

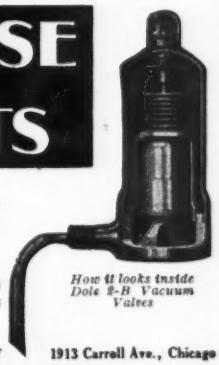
The blackboard is the original board of education.

New York City—The K. and M. Plumbing and Heating Sales Corp. has been chartered, with a capital of $10,000, to establish and operate a plumbing and heating engineering, contracting and sales business in Queens County. The new firm is represented by M. Weill, 38 Park Row.

Buffalo, N. Y.—William H. Fairchild, 1284 Kenmore avenue, has established a heating and ventilating contracting and engineering business under the firm name of the Fair Heating and Ventilating Co.

Dover, Del.—The firm of W. A. Wagner, Inc., has been chartered by William A. Wagner and associates, to establish and operate a plumbing and heating engineering and contracting business. Capital of the new concern is $25,000.

INCREASE YOUR PROFITS



There's a good margin for you
And satisfied customers too!

Sell Dole Air & Vacuum Valves

Write for full information.

THE DOLE VALVE COMPANY 1913 Carroll Ave., Chicago

How it looks inside Dole 2-B Vacuum Valves

"EBCO" Dishwashing SINK

with built-in dishpan

Let us tell you how to turn idle hours into extra profits. Send for copy of "A New Selling Slant". It does not obligate you in any way.

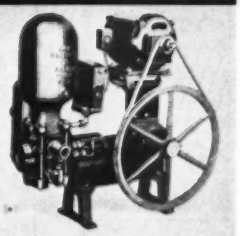
The D. A. EBINGER SANITARY MANUFACTURING CO.
411 West Town Street Columbus, Ohio

DEMING "MARVEL"

SHALLOW WELL DIRECT WATER SYSTEM

COMPARE THESE FEATURES

265 Gallons Per Hour (low cost per gallon)—Ball Bearings on Connecting Rod—Timken Roller Bearings on Crankshaft—Stainless Steel Piston Rod—Patented Splash Shield—Sectional Construction.

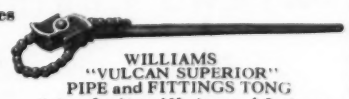


THE DEMING COMPANY
Established 1880 Salem, Ohio

BETTER PIPE TOOLS

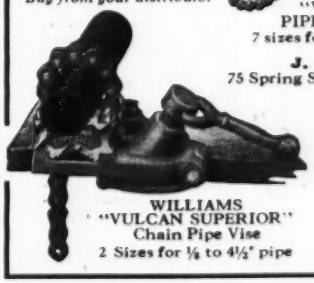
Exclusive Advantages
Modern Design

Buy from your distributor



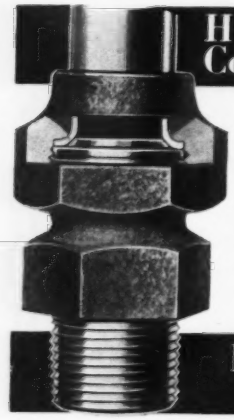
WILLIAMS "VULCAN SUPERIOR" PIPE and FITTINGS TONG
7 sizes for ⅛ to 12" pipe and fittings

J. H. WILLIAMS & CO.
75 Spring St. New York, N. Y.



WILLIAMS "VULCAN SUPERIOR" Chain Pipe Vise
2 Sizes for ⅛ to 4½" pipe

WILLIAMS
VULCAN SUPERIOR
CHAIN PIPE TOOLS

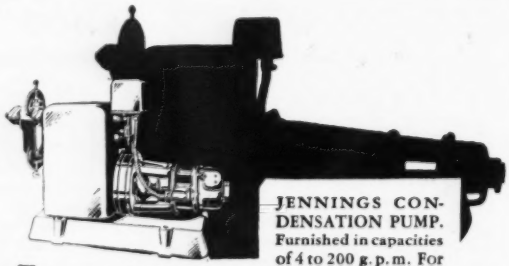


Hays Double Seal Copper Connections

Copper pipe in a Hays Double Seal Connection first makes up on the 45-degree seat. After tightening with a wrench this 45-degree seat holds the pipe in a wedge, making an absolute tight seal.

The 90-degree seat and the flange on the Copper pipe make up the second seal. This second seal protects the first by absorbing all strain and vibration. It locks the pipe and insures a joint of double tightness.

HAYS MFG. CO.
ERIE, PA.



Jennings Pumps

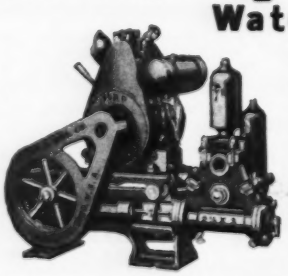
JENNINGS CONDENSATION PUMP. Furnished in capacities of 4 to 200 g.p.m. For serving up to 150,000 sq. ft. of radiation. Write for Bulletin 99. The Nash Engineering Co., 41 Wilson Rd., So. Norwalk, Conn.

SIMPLEX FLUSH VALVES
CADWELL AIR VALVES
PERFECTION FLOOR & CEILING PLATES
JUMBO PIPE HANGERS

ASK · FOR · THEM · BY · NAME · ·

The **BEATON & CADWELL MFG. CO.**
Established 1894
NEW BRITAIN, CONN.

MYERS Engine Driven Water Systems



Summer homes and cottages, lodges, camps, farms and other isolated points where electrical current is not available find Myers Self-Oiling Engine Driven Water Systems ideal for power water facilities. Self-Oiling deep or shallow well units complete with engine, provide opportunities for new and profitable water system business. Ask for catalog.

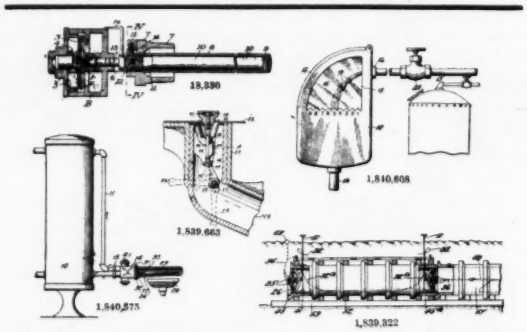
THE F. E. MYERS & BRO. CO., Ashland, Ohio

PATENTS

Plumbing Department

18,330. Thermostat. Frederick W. Robertshaw, Pittsburgh, Pa., assignor to Robertshaw Thermostat Company, Youngwood, Pa., a Corporation of Pennsylvania.

1,840,608. Flow Meter for Water Softeners and the Like. Charles S. Slichter, Madison, Wis.



1,839,663. Drain Valve Structure. John G. Fehn, Des Moines, Iowa.

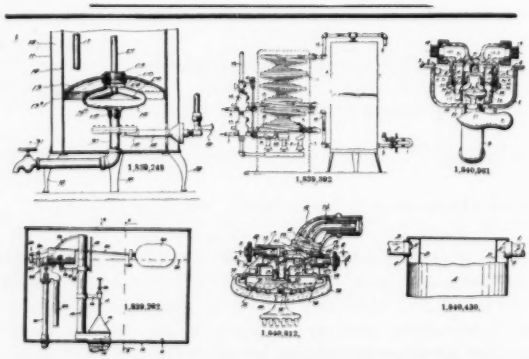
1,840,575. Water Heater. George E. Flower, Hobart, N. Y.

1,839,322. Method of and Apparatus for Laying Pipe Under Water. Beardsley Lawrence, Sharon, Mass., assignor to T. Stuart & Son Company, Newton, Mass., a Corporation of Massachusetts.

1,839,248. Fluid-Tight Joint for Water Heaters. James P. Morley and Simon J. Lonergan, La Porte, Ind., assignors to Bastian-Morley Company, La Porte, Ind., a Corporation of Indiana.

1,839,392. Water Heater. Herbert S. Humphrey, Kalamazoo, Mich., assignor to Ruud Manufacturing Company, Kalamazoo, Mich.

1,840,961. Mixing Faucet. Otto Kuenzler, Fairview, N. J.



1,839,282. Ball Cock Control and Silencer. Clarence M. Vick, Monterey Park, Calif.

1,840,812. Combination Shower Bath Spray, Bath Sponge, and Massage Device. Peter S. Hardy, New York, N. Y.

1,840,430. Pipe Connection. Thomas Bennett, Perry, N. Y., assignor to Kaustine Company, Inc., Perry, N. Y., a Corporation of New York.

CLASSIFIED ADVERTISING

8 cents for each word including heading and address. Count seven words for keyed address. Minimum $2.00 for each insertion.

One inch $4.00. Cash must accompany order. Copy should reach us eight days in advance of publication date.

Situations Open

JOBBERS AND SALES AGENTS should communicate with us re: A money-making proposition now available. Write us today. Address Koil-Les Heater Company, Geneva, Illinois.

DISTRICT SALES REPRESENTATIVE. Several desirable territories now open to represent well-known line of Electric Pumps and Water Systems. Only high type salesmen need apply. References required. Write at once. Address Key 706, "Domestic Engineering," 1900 Prairie Avenue, Chicago.

REPRESENTATIVES WANTED IN leading cities to handle highest grade line of radiator shields and radiator cabinets. Our representatives earn $500.00 to $1,000.00 per month the year around, above expenses. Full selling plan furnished. Address Key 256, "Domestic Engineering," 1900 Prairie Ave., Chicago.

SALESMEN—MANUFACTURER WITH Complete Line of Boilers, Furnaces, Radiation and Water Heaters has few open territories in Central West. Excellent earnings for producers. Address Key 709, "Domestic Engineering," 1900 Prairie Avenue, Chicago.

Situations Wanted

SALESMAN COVERING THE PLUMBing supply jobbers in the Southern States, also Pennsylvania and Ohio, desires position, can give the best of reference. Address Key 715, "Domestic Engineering," 1900 Prairie Avenue, Chicago.

EXPERIENCED HEATING ENGINEER desires connection with progressive heating manufacturer. Plan and layout work are part of my training. Can locate trouble on any vapor, vacuum, steam or hot water heating systems. Salary desired; will work anywhere. Address Key 691, "Domestic Engineering," 1900 Prairie Avenue, Chicago, Ill.

For Sale

FOR SALE—PATENT ON AUTOMATIC motorless condensation and vacuum pump for steam or vapor systems. Low manufacturing cost. Address Key 719, "Domestic Engineering," 1900 Prairie Avenue, Chicago.

Lines Wanted

MANUFACTURERS' AGENT IN PENNsylvania, Ohio, Western New York, West Virginia, in a position to take on another line to sell through the jobbing trade. Only fairly well-known products of reliable manufacturers will be considered. Address Key 714, "Domestic Engineering," 1900 Prairie Avenue, Chicago.

REPRESENTATIVE IN GOOD STANDing with wholesale jobbers in New York area open for staple brass or iron products. Address Key 708, "Domestic Engineering," 1900 Prairie Avenue, Chicago.

Representatives Wanted

SALES REPRESENTATIVES
BRANCH MANAGERS
SALESMEN

who are thoroughly experienced in the sale of steam and hot water heating equipment, who have outstanding sales records and who are interested at this time in a lucrative sales opportunity such as does not usually exist, should write for further information. Give full particulars concerning experience, past connections and sales. Present members of organization are aware of this ad and all inquiries will be treated confidentially. Address P. O. Box 1222, Pittsburgh, Pa.

Lines to Handle

MANUFACTURERS' AGENTS WANTED in Cleveland, Chicago, St. Louis, Dallas, New Orleans, Atlanta, Jacksonville and Richmond to handle complete line of Pipe Nipples, on a commission basis. Give full details in first letter. Address Key 718, "Domestic Engineering," 1900 Prairie Avenue, Chicago.

Use this page to get what you want

If you are looking for competent employes; or if you contemplate a change in position, have a patent for sale; wish to purchase or sell a plumbing and heating business; second-hand machinery or tools; form a co-partnership, etc., your advertisement on this page will put you in touch with the people you desire to reach.

The cost of insertion is only eight cents a word and may mean many dollars to you.

WANTED — SPECIALTY SALESMEN calling on plumbing and heating contractors to sell well-known tools of one of the leading manufacturers. Liberal commission, protection and cooperation. Address Box MC, Room 1110, 20 Vesey St., New York City.

MANUFACTURER OF NATIONALLY advertised line of drainage specialties has a number of desirable territories open for high grade, experienced, drainage salesmen. Attractive commissions and complete territory protection. Norman Boosey Mfg. Company, 5140 Hamilton Avenue, Detroit, Michigan.

SALES REPRESENTATIVE WANTED —Salesman calling on Plumbing Jobbers in South Atlantic and Middle Western States, who wish a profitable side line. A well-known, adjustable roof flashing. Liberal commission basis. Give full details and territory now covering. Address Key 710, "Domestic Engineering," 1900 Prairie Avenue, Chicago.

Miscellaneous

Mechanical Engineer thoroughly experienced in Flush Valve manufacturing and conditions. For the past number of years connected with the largest in the field. Not looking for a job but an interview with any responsible manufacturer interested in this line. It will cost nothing to talk it over. Address Key 716, "Domestic Engineering," 1900 Prairie Avenue, Chicago.

No More Rusty Hot Water

In Hotels ten stories and less, Laundries, Homes. Permanent, Automatic, Economical Relief. Developed Mellon Institute and Massachusetts Institute of Technology. Eight years' success.
NEVER RUST COMPANY, Lemoyne, Pa.

Books for Your Trade Library

DEAN'S SYSTEM OF GREENHOUSE HEATING. By Mark Dean. Explains in detail Mr. Dean's system of heating greenhouses with steam or hot water. Glass surface, sizes of flow and return pipes, radiating surface of pipes, etc., are all taken into consideration. This book will be a great help to anyone who plans or installs greenhouse heating systems. Many tables are given. 46 pages, 5¼x7¾, cloth cover. Price postpaid $2.00.

101 PLUMBING AND HEATING TABLES. The book contains as complete a set of working tables as has ever been published. It answers quickly and accurately, practically every kind of plumbing and heating question which could possibly be answered by a table, rule or chart. Is well indexed. Has 48 pages. Size 8x11, bound in cloth. Price postpaid $1.00.

Books Sent Parcel Post Prepaid

Domestic Engineering
1900 Prairie Avenue, Chicago

Index to Advertisers

February 20, 1932

Acheson Mfg. Co.....121
Air Reduction Sales Co...121
American Brass Co.....128
American Oil Burner Assn. 72
American Sanitary Mfg. Co.120
Armstrong Bros. Tool Co..115
Axelson Mfg. Co.....119

Barber Gas Burner Co., The 122
Barnes & Jones, Inc..... 89
Bead Chain Mfg. Co.....108
Beaton & Cadwell Mfg. Co.124
Benson Co., Inc., Alex R...120
Blake Specialty Co.....115

Capitol Brass Division of Bohn Aluminum & Brass Corp. 97
C. D. S. Products Corp.... 92
Conco Valve Division of Bohn Aluminum & Brass Corp. 97
Crane Co. 86

Dahlquist Mfg. Co.....108
Dart Mfg. Co., E. M.....116
Decatur Pump Co..... 94
Deming Co. 123
Dole Valve Co.....123
Duriron Co., Inc., The.....104

Ebinger Sanitary Mfg. Co., D. A. 123

Fairbanks, Morse & Co....127

Gerstein & Cooper Co.....101
Goulds Pumps, Inc...16 and 17
Grabler Mfg. Co..... 5

Hart & Crouse Co..... 15
Hayes Mfg. Co.....121
Hays Mfg. Co.....124
Healy-Ruff Co. 120
Hoffman Specialty Co., Inc. 19
Hotstream Heater Co..... 11

Illinois Malleable Iron Co.112
International Nickel Co... 95

Jarecki Mfg. Co..... 92
Jones Hollow Ware Co....120

Keasbey & Mattison Co...106
Kennedy Valve Mfg. Co... 84
Kohler Company 9
Koven & Bro., Inc., L. O...111

Lavelle Rubber Co.....116
Leonard-Rooke Co. 112
Linde Air Products Co..... 53

Malleable Iron Fittings Co. 94
Milwaukee Flush Valve Co.109
Morrison Bros. 105
Motor Wheel Corp..... 87
Mueller Brass Co..... 12
Murdock Mfg. & Supply Co., The 115
Myers & Bro., Co., F. E....124

Nash Engineering Co.....124
National Lead Co..... 14
National Pipe Bending Machine Co. 13
National Regulator Co.....102
Norristown Magnesia & Asbestos Co. 59

Penberthy Injector Co..... 51
Penna. Range Boiler Co...115
Phoenix Brass Fittings Corp. 105
Powers Regulator Co.....116

Ravena Iron Co.....122
Republic Brass Co..... 91
Republic Steel Corp..... 83
Ridge Tool Co.....109
Robertshaw Thermostat Co. 73
Rome Radiation Co..... 57

San-Equip Co., The..... 18
Semler Co. 109
Smooth-On Mfg. Co.....103
Speakman Co. 96
Spencer Heater Co..... 65
Spencer Thermostat Co.... 85
Standard Sanitary Mfg. Co. 54
Stokes Rubber Co., Jos.... 7

Taber Pump Co.....109
Toledo Pipe Threading Machine Co. 20
Trenton Brass & Machine Co. 102
Trimont Mfg. Co.....121

United Hotels Co. of America 117
U. S. Hame Co.....116

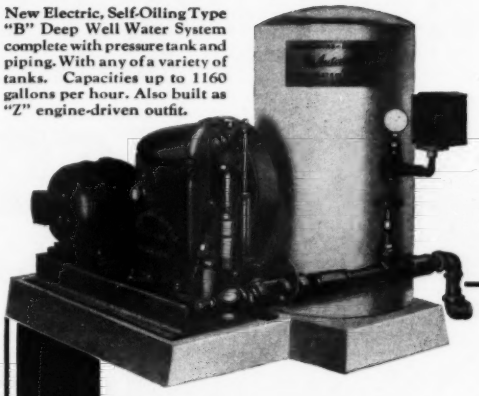
Vogel Co., Jos. A..... 3

Warren Webster & Co..... 10
Watts Regulator Co..... 88
Weis Mfg. Co., Henry.....113
Williams & Co., J. H.....123
Wise, Inc., J. B..... 93
Worcester Brush & Scraper Co. 119

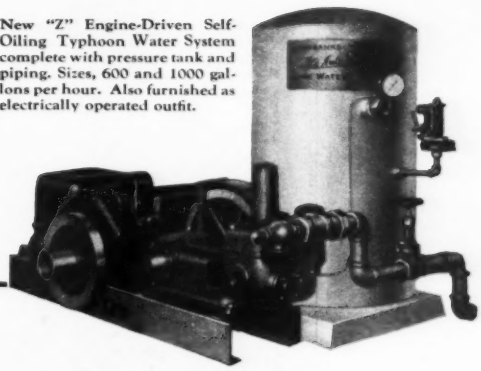
"X" Laboratories..Back Cover

Youngstown Sheet & Tube Co. 8

New Electric, Self-Oiling Type "B" Deep Well Water System complete with pressure tank and piping. With any of a variety of tanks. Capacities up to 1160 gallons per hour. Also built as "Z" engine-driven outfit.



New "Z" Engine-Driven Self-Oiling Typhoon Water System complete with pressure tank and piping. Sizes, 600 and 1000 gallons per hour. Also furnished as electrically operated outfit.



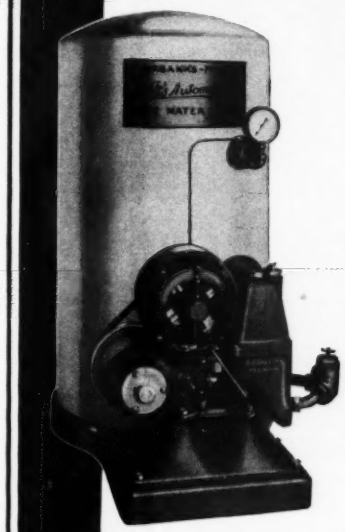
Here is *Every* element necessary to *Profitable* business volume!

The dealer who sells Fairbanks-Morse Home Water Systems has at his command every element necessary to profitable business volume.

The F-M line of Home Water Systems is complete in every way—*price, size and type.* It meets price competition with *low price, plus quality* that has never been questioned. No matter what size or type of home water system your customer needs, you have it in the F-M line . . . engine or electric driven . . . deep or shallow well . . . large or small capacity . . . for cottage or mansion. You make the sale and get the profits because you have the system that "fills the bill"—*exactly*.

F-M is the only line of home water systems that offers you and your customers *centralized responsibility*. Both pumps *and* power units are built by Fairbanks-Morse. The complete system is covered by *one reliable guaranty*. That means parts and service from *one source*—if they are ever needed. It means greater customer confidence. Why not get the profit-advantage of selling this one, complete, nationally advertised, world-known line? The F-M Franchise may be open in your territory now. It will pay you to find out. Just pin the coupon below to your letterhead. Fairbanks, Morse & Co., Department I-2, 900 S. Wabash Ave., Chicago, Ill.

The Automatic, Electric Shallow Well Water System shown here has been the widely advertised F-M price leader for three years. Completely enclosed, small, compact, attractive blue lacquer finish. Two sizes, 210 and 420 gallons per hour. Retail prices, $66 and $94.50 respectively, cash, f. o. b. factory.



F-M Automatic, Electric Shallow Well Water System with either 35 or 70 gallon pressure tank. Sizes, 210 and 420 gallons per hour. Equipped with automatic air regulator. Low priced.

Direct-Connected, Electric Deep Well Home Water System for use where water must be lifted more than 22 feet. Made in 5 sizes to cover any volume requirements. Operates automatically.

FAIRBANKS, MORSE & CO.

MANUFACTURERS—CHICAGO, U. S. A.

Branches and Service Stations *Covering Every State in the Union*

PIN THIS COUPON TO YOUR LETTERHEAD

FAIRBANKS, MORSE & CO.
Department I-2, 900 S. Wabash Ave., Chicago, Ill.
Gentlemen: Please send me complete details regarding your dealer proposition on F-M Home Water Systems if my territory is not already closed.

Name.....

City..... State.....

12 Companies make Water Heaters with Rust-Proof Tanks

NOT one or two, but 12 leading manufacturers make water heaters with tanks that banish rust troubles . . . rust-colored water, a reduced flow from pipes choked by tank rust, or a tank so weakened by rust that it leaks and bursts. What significant evidence of public interest in *durable* heater tanks!

Copper and Bronze are rustless and highly resistant to corrosion. Many well-made Copper tanks are still sound after forty years and more of continuous use.

ANACONDA
from mine to consumer

Recently, a number of leading manufacturers have adopted Everdur, 96% Copper alloyed with Silicon and Manganese. This Copper alloy combines the corrosion resistance of pure Copper with the strength of steel. The ease with which it is welded makes Everdur the ideal metal for *rust-proof* tanks of welded construction.

Now automatic water heaters with Copper or Everdur tanks are readily available at moderate prices. Further information and list of manufacturers on request.

Anaconda Brass Pipe

A storage tank of Copper or Everdur, connected with Anaconda Brass Pipe, provides a completely rust-proofed hot water system. Public knowledge of such a system's many advantages will stimulate sales of rust-proof tanks and continue to increase the use of Brass Pipe.

THE AMERICAN BRASS CO.
General Offices: Waterbury, Conn.
Agencies and Offices in Principal Cities

Tanks of ANACONDA METAL